General Motors Upfitter Integration

BODY BUILDER MANUAL

ELECTRICAL SECTION

FOR THE

2017 CHEVROLET LOW CAB FORWARD

MEDIUM DUTY 3500HD

Revision 1.0 www.gmupfitter.com *April 24, 2017*

Note to User:
As part of our mission to provide an up-to-date website that includes detailed Body Builder Manuals, Technical Bulletins, and Best Practice Manuals, we are now using sectional excerpts directly from the General Motors Service Information publications for our Electrical Body Builder Manuals.

You will note that the section numbers are non-sequential as we have provided only those that are believed to be the most pertinent to the Upfitter community and best suited to their needs.*

This new usage of the Service Information provides the opportunity for us to remain consistent with the changes that take place throughout the model year and to provide you updated information in a more timely fashion.

**** If you would like to have access to all of the electrical Service Information, please apply for a subscription from ACDelco at http://acdelcotechconnect.com/html/tss_tech_esi.jsp***

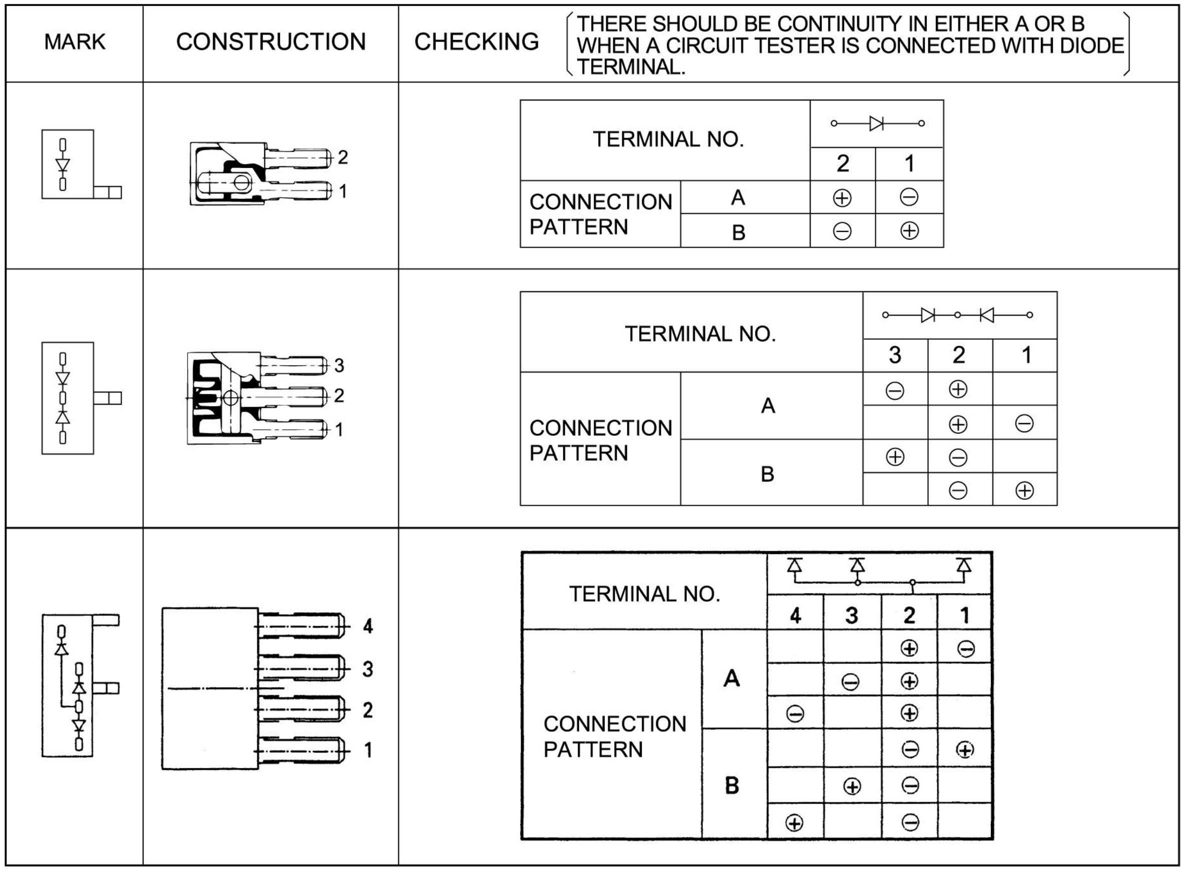
Cab and Chassis Electrical

Cab and Chassis Electrical

Specifications

Battery Specifications

Application	Specification
Type	Delkor 31T – 750
Cold Crank Capacity	750 amp
Reserve Capacity (25 Amperes)	160 Minutes



MARK | CONSTRUCTION | CHECKING (THERE SHOULD BE CONTINUITY IN EITHER A OR B WHEN A CIRCUIT TESTER IS CONNECTED WITH DIODE TERMINAL.)

TERMINAL NO.		2	1
CONNECTION PATTERN	A	⊕	⊖
	B	⊖	⊕

TERMINAL NO.		3	2	1
CONNECTION PATTERN	A	⊖	⊕	
			⊕	⊖
	B	⊕	⊖	
			⊖	⊕

TERMINAL NO.		4	3	2	1
CONNECTION PATTERN	A			⊕	⊖
			⊖	⊕	
		⊖		⊕	
	B			⊖	⊕
			⊕	⊖	
		⊕		⊖	

LNW780LF000601

Maximum Rating (Temp. = 25°C {77°F})

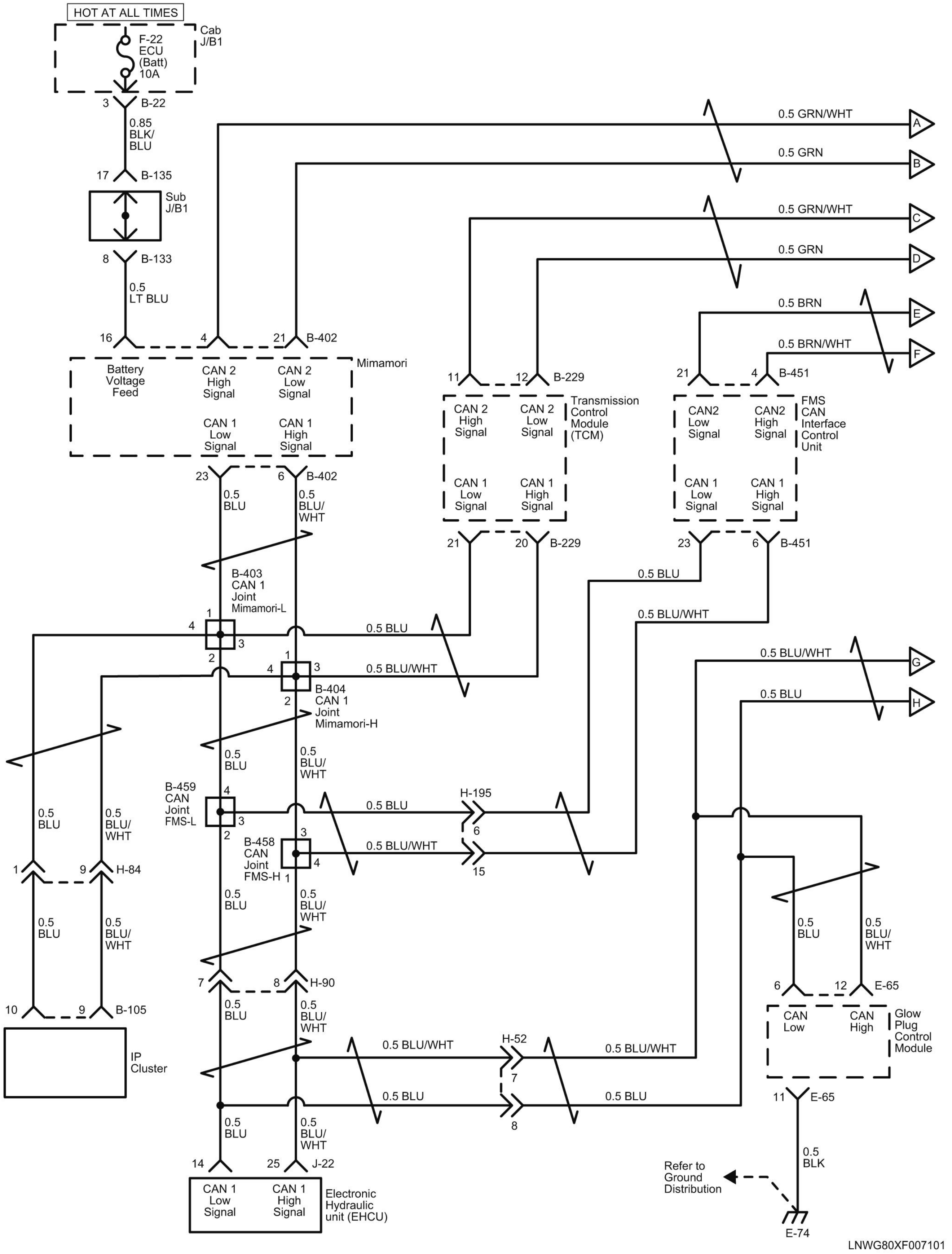
Items	Rating	Remarks
Peak Reverse Voltage	400V	—
Transient Peak Reverse Voltage	500V	—
Average Output Current	1.5A	Temp. = 40°C (104°F)
Working Ambient Temperature	-30°C – 80°C (-22°F – 176°F)	—
Storage Temperature	-40°C – 100°C (-40°F – 212°F)	—

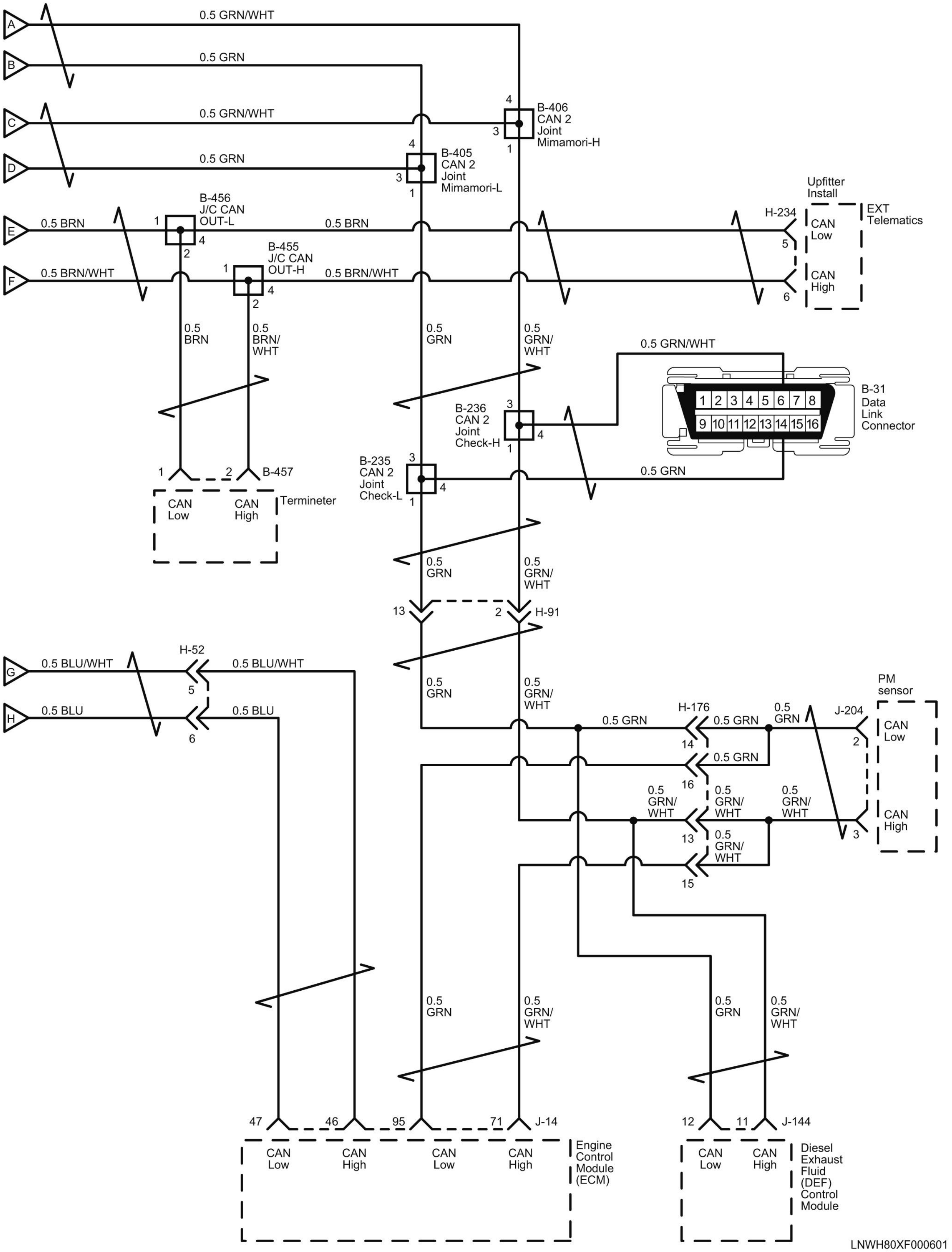
Reference Table of Fuse

Fuse No.	Capacity	Indication on Label	Main Parts(Load)
F-1	—	—	—
F-2	—	—	—
F-3	10A	ROOM LAMP,AUDIO	Audio, Data Link Connector, Dome Light
F-4	15A	DOOR LOCK	Door Lock Relay
F-5	15A	TRAILER BRAKE	Trailer Stop Relay
F-6	25A	P/WINDOW	Front Power Window RH Switch, Front Power Window LH Switch
F-7	10A	ABS	Electronic Hydraulic Control Unit (EHCU)
F-8	25A	WIPER	Wiper Main Relay, Wiper High Low Relay, Front Wiper Motor Front Washer Motor
F-9	10A	H/LAMP LO (LH)	Headlight LH, DRL Control Unit
F-10	10A	LMAPS (BATT)	DRL Relay, Headlight High Relay, Headlight Low Relay, Tail Relay
F-11	10A	H/LAMP LO (RH)	Headlight RH, DRL Control Unit
F-12	10A	BRAKE LAMPS	Stoplight Relay
F-13	10A	STARTER	P/N Start Relay
F-14	10A	H/LAMP HI (LH)	IP Cluster, Headlight LH, Headlight High Relay
F-15	10A	H/LAMP HI (RH)	Headlight RH,Headlight High Relay
F-16	15A	MIRROR HEATER	Blower Relay, Power Window Relay, Mirror Heater Switch
F-17	—	—	—
F-18	10A	IGNITION1	PTO Enable Relay, Intermittent Relay, Vacuum Pump Relay, Inhibitor Switch, Keyless Entry Control Unit
F-19	—	—	—
F-20	10A	ECM	Engine Control Module (ECM), Cruise Main Switch, Combination Switch Stoplight Switch
F-21	10A	METER	IP Cluster, Key On Relay, P/N Start Relay, TCM Relay Vacuum Pump Relay, Vehicle Speed Sensor, Flasher Unit Electronic Hydraulic Control Unit (EHCU), Cornering Light Relay PTO Switch 2
F-22	10A	ECU (BATT)	IP Cluster, Check Miles and Check Oil Level Switch, TCM Relay Transmission Control Module (TCM), Engine Control Module (ECM)
F-23	10A	MIRROR	Rear Body Switch, Rear Body Connector, MIMAMORI
F-24	15A	AUDIO, ACC	Audio, Cigarette Lighter Relay, Power ACC Relay
F-25	15A	HORN	Horn Relay

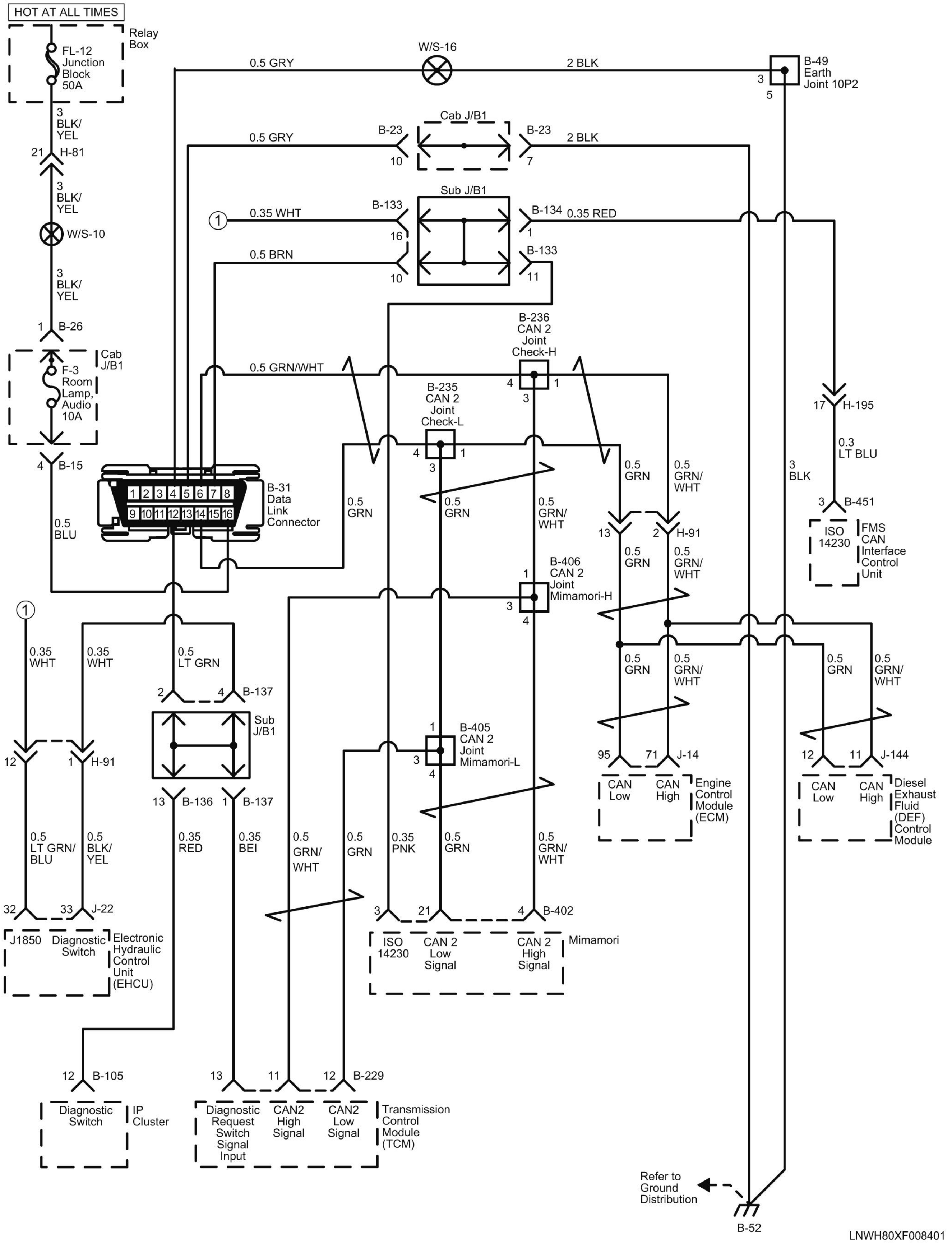
F-26	15A	TURN, HAZARD	Flasher Unit
F-27	10A	TAIL LAMPS	ID 1, ID 2, ID 3, Marker 1, Marker 2, Marker Light Relay Side Marker RH, Side Marker LH,
F-28	10A	ILLUMINATIONS	Check Miles and Check Oil Level Switch, Door Lock Switch, Audio Cigarette Illumination, Cruise Main Switch DPF Regeneration Switch, PTO Engine Speed Control Switch Mirror Heater Switch, Illumination Control Switch, Overdrive Off Switch IP Cluster, Hazard Switch, PTO Switch 2
F-29	10A	CORNERING LAMPS	Cornering Light Relay
F-30	10A	AIR CONDITIONER	Blower Relay, Blower Motor, Magnetic Clutch Relay Defroster Switch, A/C Switch
F-31	20A	MARKER LAMP	Marker Light Relay
F-32	20A	TAIL MAIN	Tail Relay
F-33	15A	FUEL HEATER	Fuel Heater
F-34	20A	SCR	Diesel Exhaust Fluid (DEF) Control Module, Heater Valve Relay, NOx and Diesel Exhaust Fluid (DEF) Sensor Relay
F-35	15A	PM SENSOR	PM Sensor, Glow Plug Control Module
F-36	15A	RR DOME LIGHT	Rear Manufacture Connector
F-37	20A	CONDENSER FAN	Condenser Fan Relay
F-38	10A	AIR CONDITIONER	Magnetic Clutch Relay
F-39 (D-1)	20A	CIGAR	Cigarette Lighter
F-40 (D-2)	15A	ACCESSORIES SOCKET	ACC Socket
F-41 (D-3)	20A	POWER SOURCE	Power Source

Controller Area Network (CAN) Schematics


HOT AT ALL TIMES
F-22
ECU
(Batt)
10A
Cab
J/B1
3 B-22
0.85
BLK/
BLU
17 B-135
Sub
J/B1
8 B-133
0.5
LT BLU
16 4 21 B-402
Mimamori
Battery Voltage Feed
CAN 2 High Signal
CAN 2 Low Signal
CAN 1 Low Signal
CAN 1 High Signal
23 6 B-402
0.5 GRN/WHT
A
0.5 GRN
B
0.5 GRN/WHT
C
0.5 GRN
D
0.5 BRN
E
0.5 BRN/WHT
F
11 12 B-229
Transmission Control Module (TCM)
CAN 2 High Signal
CAN 2 Low Signal
CAN 1 Low Signal
CAN 1 High Signal
21 20 B-229
21 4 B-451
FMS CAN Interface Control Unit
CAN2 Low Signal
CAN2 High Signal
CAN 1 Low Signal
CAN 1 High Signal
23 6 B-451
0.5
BLU
0.5
BLU/
WHT
B-403
CAN 1
Joint
Mimamori-L
1 4 3 2
0.5 BLU
0.5 BLU/WHT
B-404
CAN 1
Joint
Mimamori-H
1 4 3 2
0.5 BLU
0.5 BLU/WHT
0.5 BLU/WHT
G
0.5 BLU
H
B-459
CAN
Joint
FMS-L
4 3 2
B-458
CAN
Joint
FMS-H
3 4 1
0.5 BLU
0.5 BLU/WHT
H-195
6
15
1 9 H-84
7 8 H-90
10 9 B-105
IP
Cluster
0.5 BLU/WHT
0.5 BLU
H-52
7
8
0.5 BLU/WHT
0.5 BLU
6 12 E-65
Glow Plug Control Module
CAN Low
CAN High
11 E-65
0.5
BLK
Refer to Ground Distribution
E-74
14 25 J-22
CAN 1 Low Signal
CAN 1 High Signal
Electronic Hydraulic unit (EHCU)
LNWG80XF007101

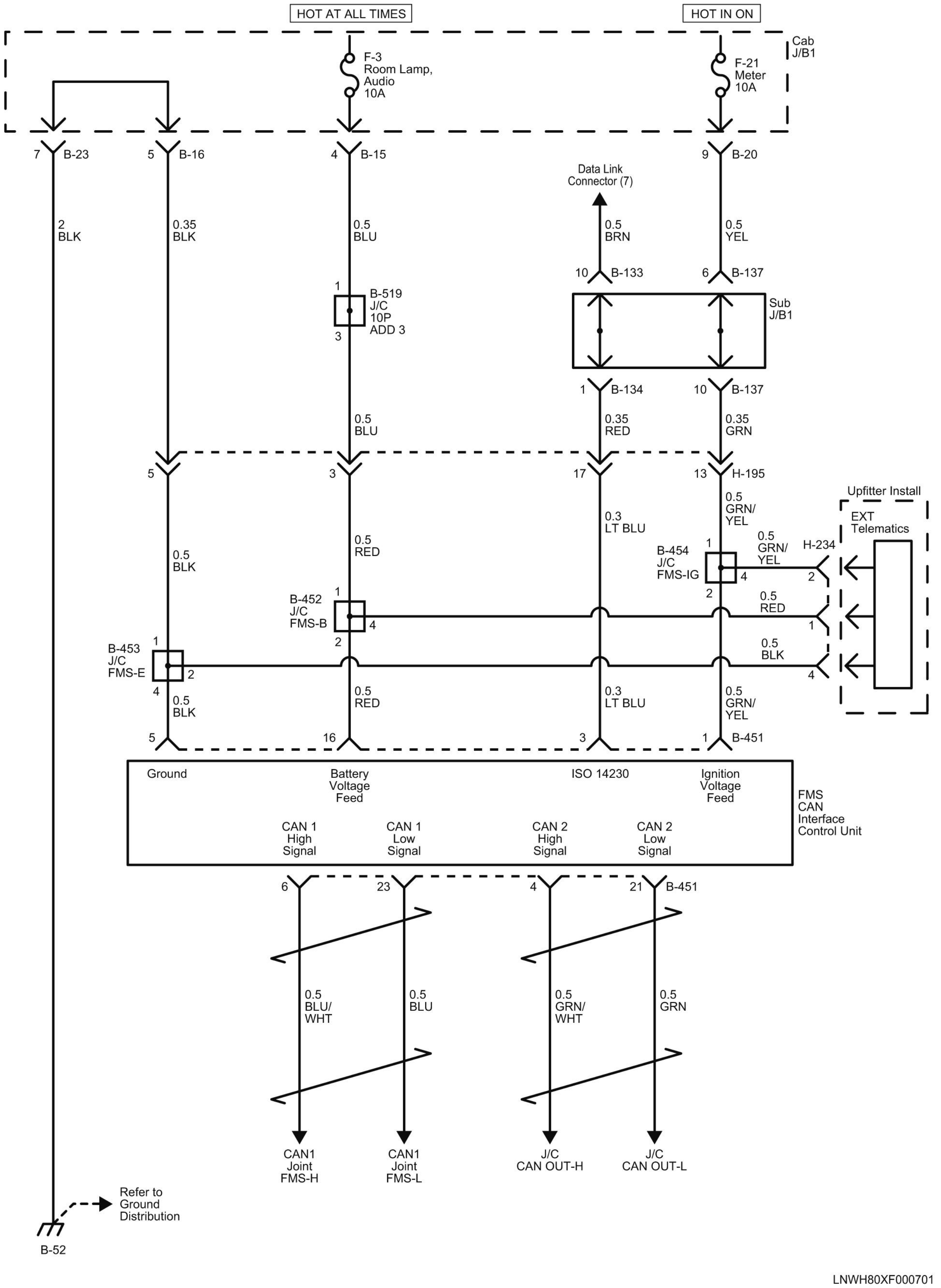

A
0.5 GRN/WHT
B
0.5 GRN
C
0.5 GRN/WHT
D
0.5 GRN
4
3
1
B-406
CAN 2
Joint
Mimamori-H
4
3
1
B-405
CAN 2
Joint
Mimamori-L
E
0.5 BRN
1
4
2
B-456
J/C CAN
OUT-L
0.5 BRN
F
0.5 BRN/WHT
1
4
2
B-455
J/C CAN
OUT-H
0.5 BRN/WHT
Upfitter
Install
H-234
5
6
CAN
Low
CAN
High
EXT
Telematics
0.5
BRN
0.5
BRN/
WHT
0.5
GRN
0.5
GRN/
WHT
0.5 GRN/WHT
B-31
Data
Link
Connector
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
3
4
1
B-236
CAN 2
Joint
Check-H
3
4
1
B-235
CAN 2
Joint
Check-L
0.5 GRN
1
2
B-457
CAN
Low
CAN
High
Termineter
0.5
GRN
0.5
GRN/
WHT
13
2
H-91
0.5
GRN
0.5
GRN/
WHT
G
0.5 BLU/WHT
H-52
5
0.5 BLU/WHT
H
0.5 BLU
6
0.5 BLU
0.5 GRN
H-176
14
0.5 GRN
0.5
GRN
J-204
2
PM
sensor
CAN
Low
0.5 GRN
16
0.5
GRN/
WHT
13
0.5
GRN/
WHT
0.5
GRN/
WHT
3
CAN
High
0.5
GRN/
WHT
15
0.5
GRN
0.5
GRN/
WHT
0.5
GRN
0.5
GRN/
WHT
47
46
95
71
J-14
CAN
Low
CAN
High
CAN
Low
CAN
High
Engine
Control
Module
(ECM)
12
11
J-144
CAN
Low
CAN
High
Diesel
Exhaust
Fluid
(DEF)
Control
Module
LNWH80XF000601

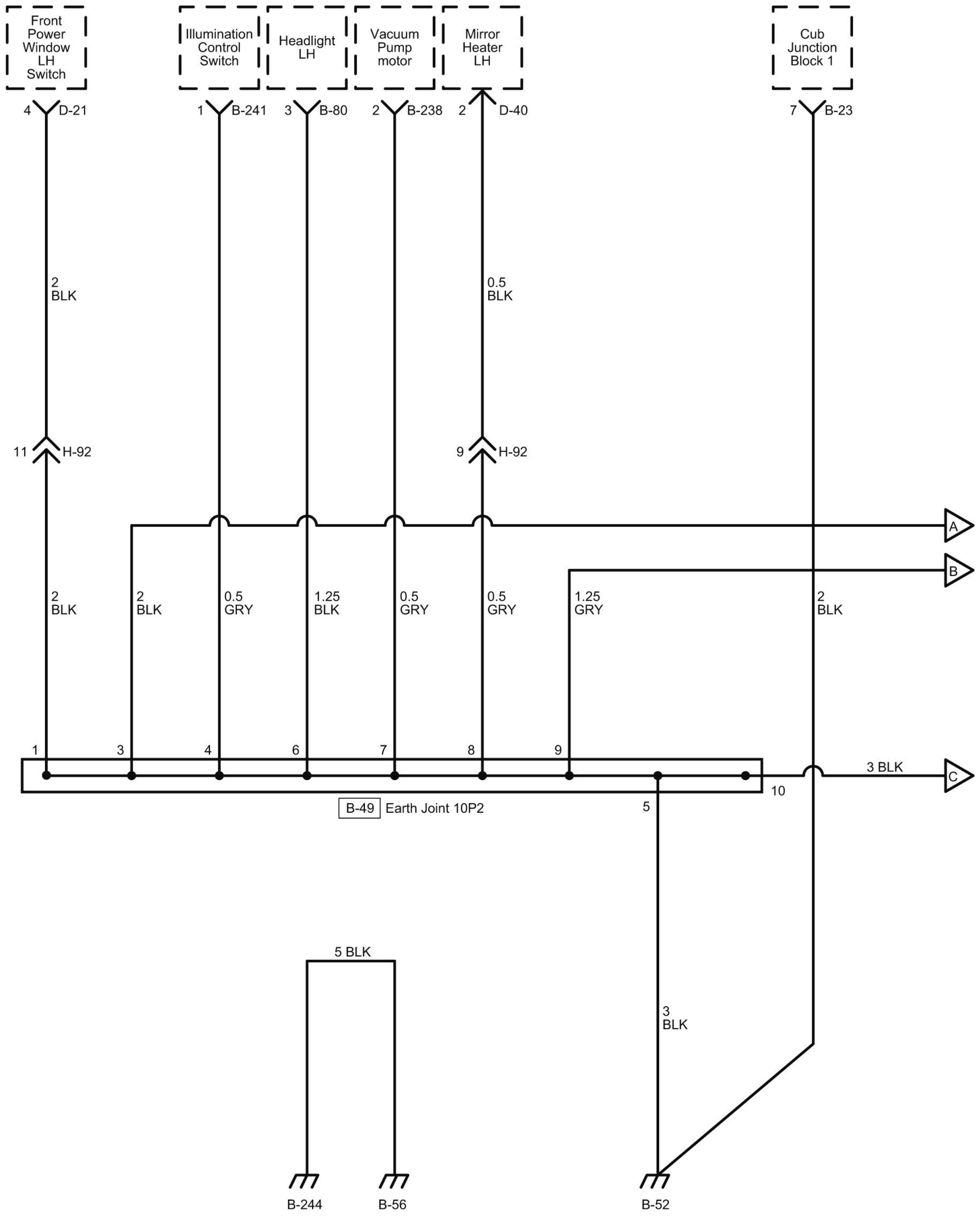
Data Link Connector Schematics



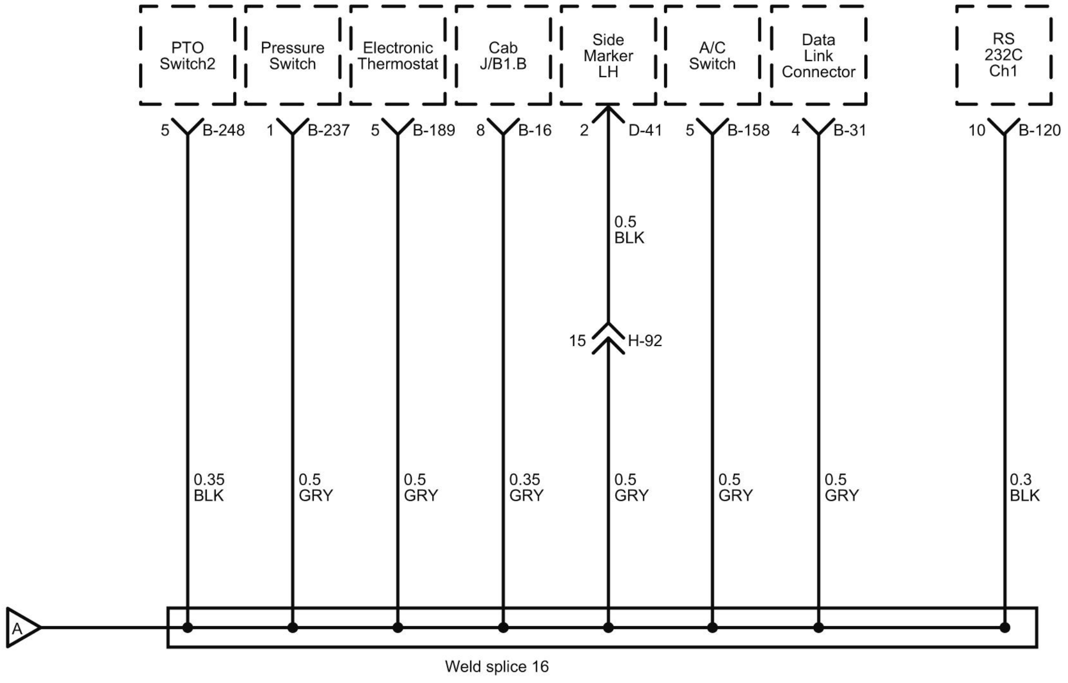
HOT AT ALL TIMES
FL-12 Junction Block 50A
Relay Box
3 BLK/YEL
21 H-81
3 BLK/YEL
W/S-10
3 BLK/YEL
1 B-26
Cab J/B1
F-3 Room Lamp, Audio 10A
4 B-15
0.5 BLU
0.5 GRY
W/S-16
2 BLK
3 B-49 Earth Joint 10P2
5
B-23 10
Cab J/B1
B-23 7
0.5 GRY
2 BLK
1
0.35 WHT
B-133 16
Sub J/B1
B-134 1
0.35 RED
0.5 BRN
10
B-133 11
0.5 GRN/WHT
B-236 CAN 2 Joint Check-H
4 3 1
B-235 CAN 2 Joint Check-L
4 3 1
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
B-31 Data Link Connector
0.5 GRN
0.5 GRN
0.5 GRN/WHT
0.5 GRN
0.5 GRN/WHT
13 2 H-91
0.5 GRN
0.5 GRN/WHT
3 BLK
17 H-195
0.3 LT BLU
3 B-451
ISO 14230
FMS CAN Interface Control Unit
B-406 CAN 2 Joint Mimamori-H
1 3 4
1
0.35 WHT
0.35 WHT
0.5 LT GRN
2 4 B-137
Sub J/B1
12 1 H-91
13 B-136 1 B-137
0.5 LT GRN/BLU
0.5 BLK/YEL
0.35 RED
0.35 BEI
B-405 CAN 2 Joint Mimamori-L
1 3 4
0.5 GRN/WHT
0.5 GRN
0.35 PNK
0.5 GRN
0.5 GRN/WHT
0.5 GRN
0.5 GRN/WHT
0.5 GRN
0.5 GRN/WHT
95 71 J-14
CAN Low
CAN High
Engine Control Module (ECM)
12 11 J-144
CAN Low
CAN High
Diesel Exhaust Fluid (DEF) Control Module
32 33 J-22
J1850
Diagnostic Switch
Electronic Hydraulic Control Unit (EHCU)
3 21 4 B-402
ISO 14230
CAN 2 Low Signal
CAN 2 High Signal
Mimamori
12 B-105
Diagnostic Switch
IP Cluster
13 11 12 B-229
Diagnostic Request Switch Signal Input
CAN2 High Signal
CAN2 Low Signal
Transmission Control Module (TCM)
Refer to Ground Distribution
B-52
LNWH80XF008401

FMS CAN Interface Schematics

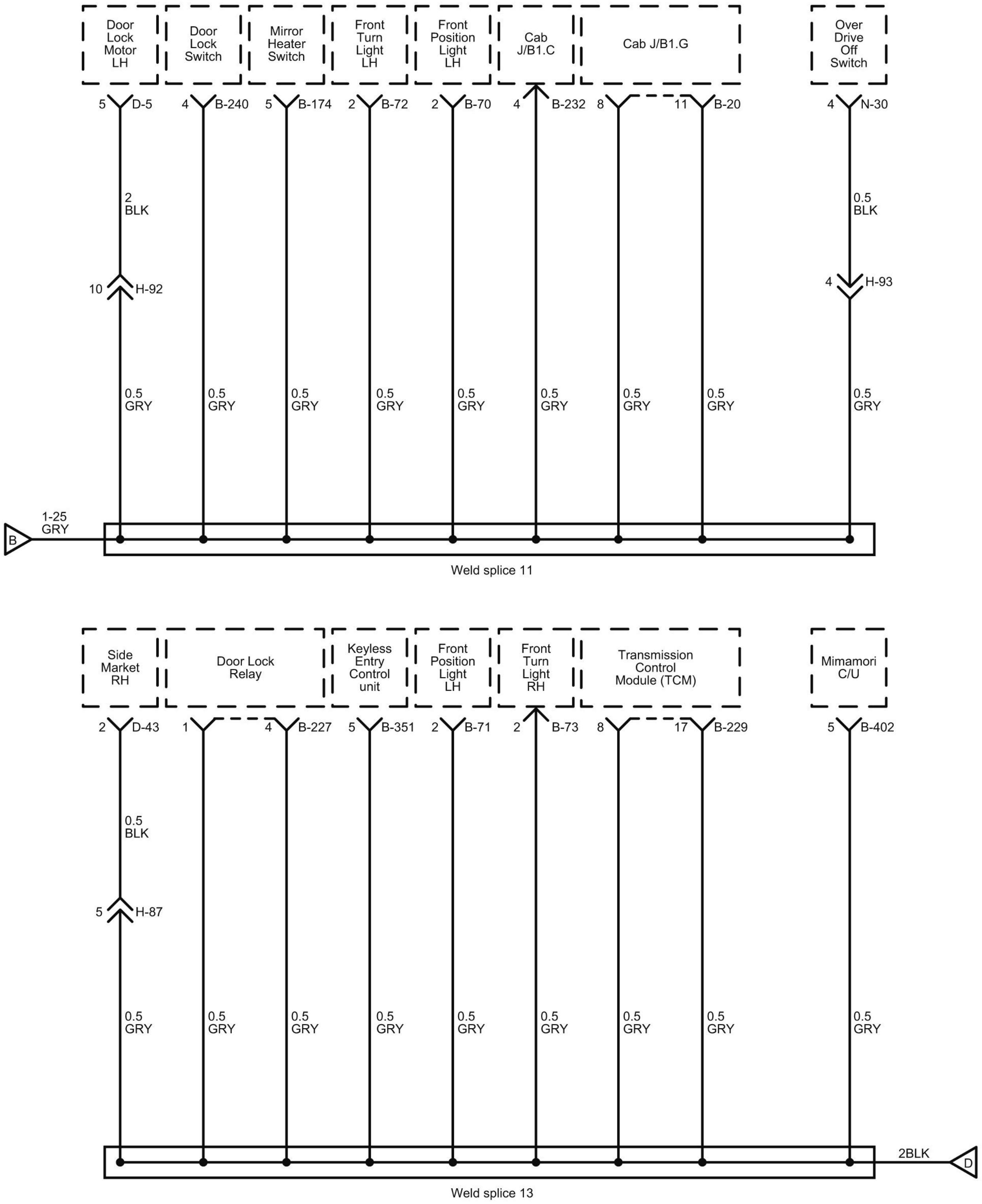

HOT AT ALL TIMES
HOT IN ON
Cab J/B1
F-3 Room Lamp, Audio 10A
F-21 Meter 10A
7 B-23
5 B-16
4 B-15
9 B-20
Data Link Connector (7)
2 BLK
0.35 BLK
0.5 BLU
0.5 BRN
0.5 YEL
10 B-133
6 B-137
1 B-519 J/C 10P ADD 3 3
Sub J/B1
1 B-134
10 B-137
0.5 BLU
0.35 RED
0.35 GRN
5
3
17
13 H-195
Upfitter Install
EXT Telematics
0.5 GRN/ YEL
0.5 BLK
0.5 RED
0.3 LT BLU
B-454 J/C FMS-IG
1 4 2
0.5 GRN/ YEL
H-234
2
0.5 RED
1
B-452 J/C FMS-B
1 4 2
0.5 BLK
4
B-453 J/C FMS-E
1 2 4
0.5 BLK
0.5 RED
0.3 LT BLU
0.5 GRN/ YEL
5
16
3
1 B-451
Ground
Battery Voltage Feed
ISO 14230
Ignition Voltage Feed
FMS CAN Interface Control Unit
CAN 1 High Signal
CAN 1 Low Signal
CAN 2 High Signal
CAN 2 Low Signal
6
23
4
21 B-451
0.5 BLU/ WHT
0.5 BLU
0.5 GRN/ WHT
0.5 GRN
CAN1 Joint FMS-H
CAN1 Joint FMS-L
J/C CAN OUT-H
J/C CAN OUT-L
Refer to Ground Distribution
B-52
LNWH80XF000701


Front Power Window LH Switch
Illumination Control Switch
Headlight LH
Vacuum Pump motor
Mirror Heater LH
Cub Junction Block 1
4 D-21
1 B-241
3 B-80
2 B-238
2 D-40
7 B-23
2 BLK
0.5 BLK
11 H-92
9 H-92
A
B
C
2 BLK
2 BLK
0.5 GRY
1.25 BLK
0.5 GRY
0.5 GRY
1.25 GRY
2 BLK
1
3
4
6
7
8
9
10
5
3 BLK
B-49 Earth Joint 10P2
5 BLK
3 BLK
B-244
B-56
B-52

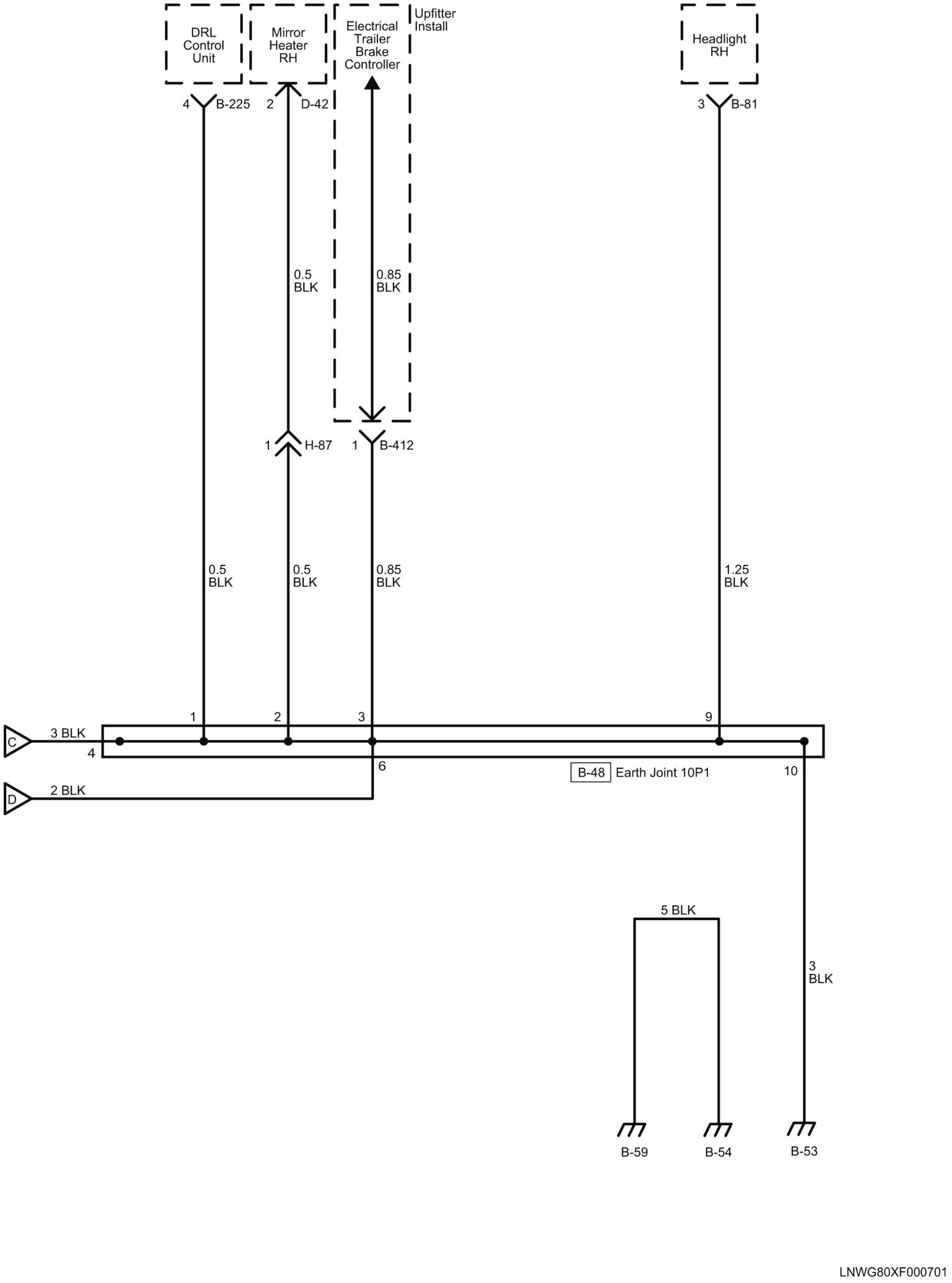
LNWG80XF000501

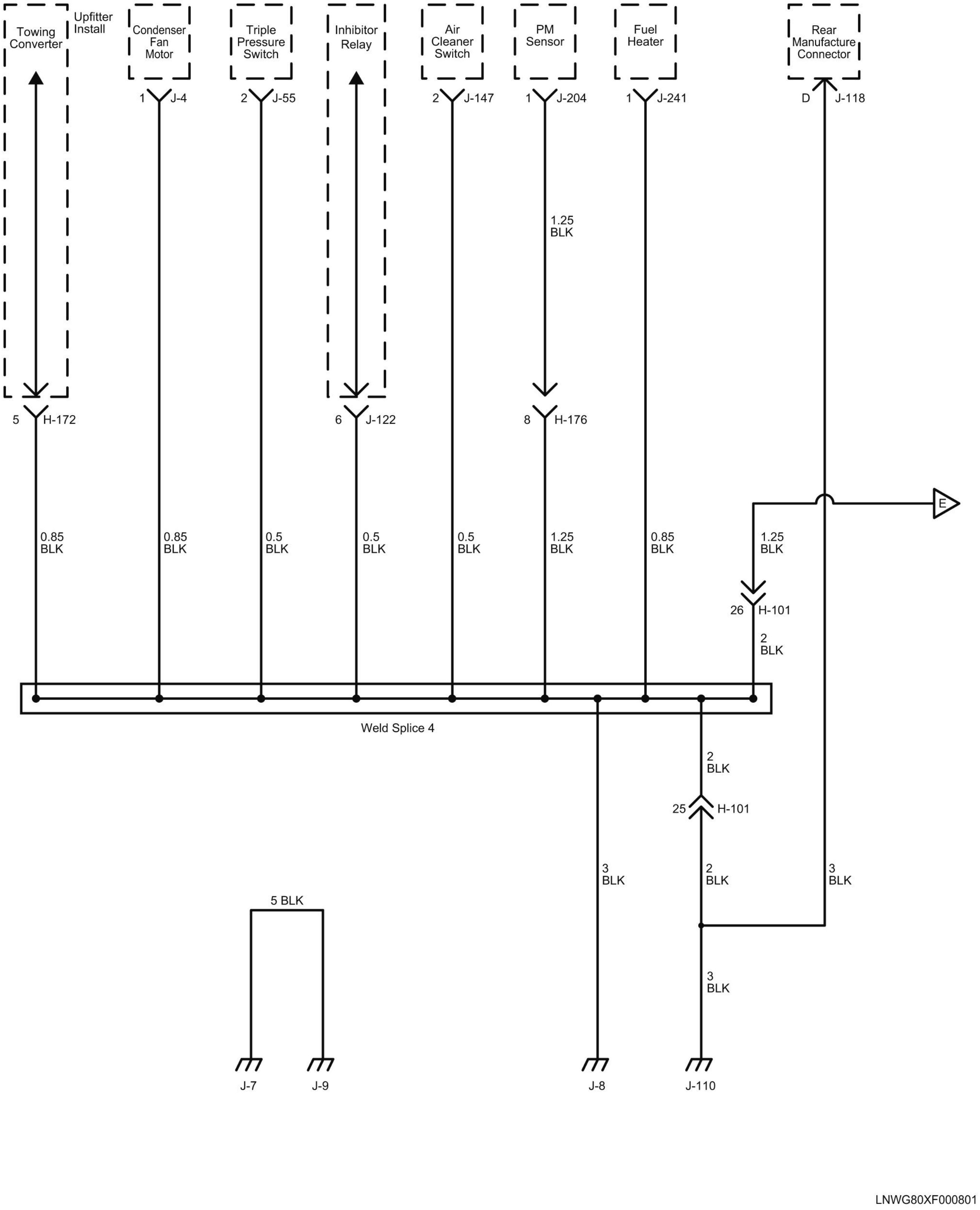

PTO Switch2
Pressure Switch
Electronic Thermostat
Cab J/B1.B
Side Marker LH
A/C Switch
Data Link Connector
RS 232C Ch1
5 B-248
1 B-237
5 B-189
8 B-16
2 D-41
5 B-158
4 B-31
10 B-120
0.5 BLK
15 H-92
0.35 BLK
0.5 GRY
0.5 GRY
0.35 GRY
0.5 GRY
0.5 GRY
0.5 GRY
0.3 BLK
A
Weld splice 16

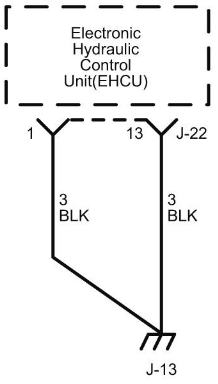
LNWG80XF000401

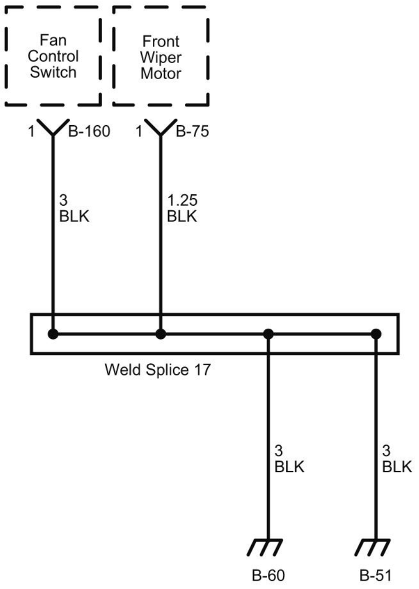

Door Lock Motor LH
Door Lock Switch
Mirror Heater Switch
Front Turn Light LH
Front Position Light LH
Cab J/B1.C
Cab J/B1.G
Over Drive Off Switch
5 D-5
4 B-240
5 B-174
2 B-72
2 B-70
4 B-232
8
11 B-20
4 N-30
2 BLK
0.5 BLK
10 H-92
4 H-93
0.5 GRY
B
1-25 GRY
Weld splice 11
Side Market RH
Door Lock Relay
Keyless Entry Control unit
Front Position Light LH
Front Turn Light RH
Transmission Control Module (TCM)
Mimamori C/U
2 D-43
1
4 B-227
5 B-351
2 B-71
2 B-73
8
17 B-229
5 B-402
0.5 BLK
5 H-87
0.5 GRY
2BLK
D
Weld splice 13

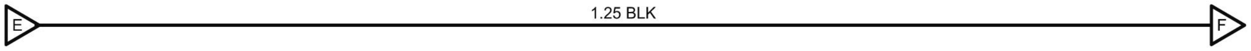
LNWG80XF000601

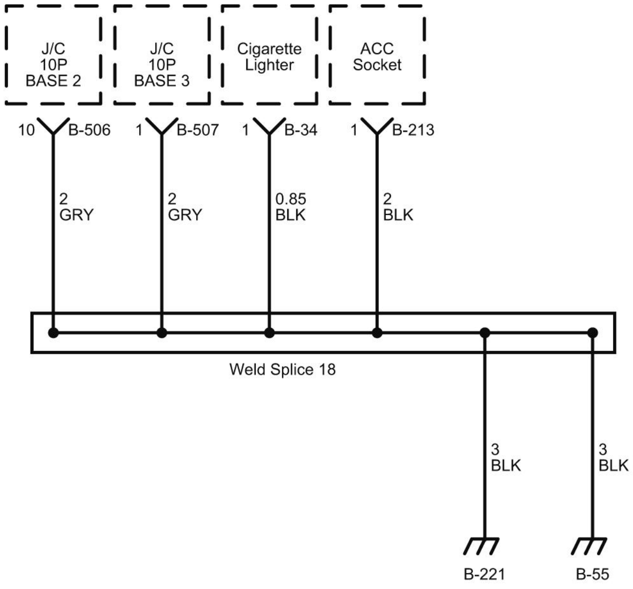

DRL Control Unit
Mirror Heater RH
Electrical Trailer Brake Controller
Upfitter Install
Headlight RH
4
B-225
2
D-42
3
B-81
0.5 BLK
0.85 BLK
1
H-87
1
B-412
0.5 BLK
0.5 BLK
0.85 BLK
1.25 BLK
1
2
3
9
C
3 BLK
4
6
B-48
Earth Joint 10P1
10
D
2 BLK
5 BLK
3 BLK
B-59
B-54
B-53
LNWG80XF000701


Towing Converter
Upfitter Install
Condenser Fan Motor
Triple Pressure Switch
Inhibitor Relay
Air Cleaner Switch
PM Sensor
Fuel Heater
Rear Manufacture Connector
1 J-4
2 J-55
2 J-147
1 J-204
1 J-241
D J-118
1.25 BLK
5 H-172
6 J-122
8 H-176
E
0.85 BLK
0.85 BLK
0.5 BLK
0.5 BLK
0.5 BLK
1.25 BLK
0.85 BLK
1.25 BLK
26 H-101
2 BLK
Weld Splice 4
2 BLK
25 H-101
3 BLK
2 BLK
3 BLK
5 BLK
3 BLK
J-7
J-9
J-8
J-110
LNWG80XF000801

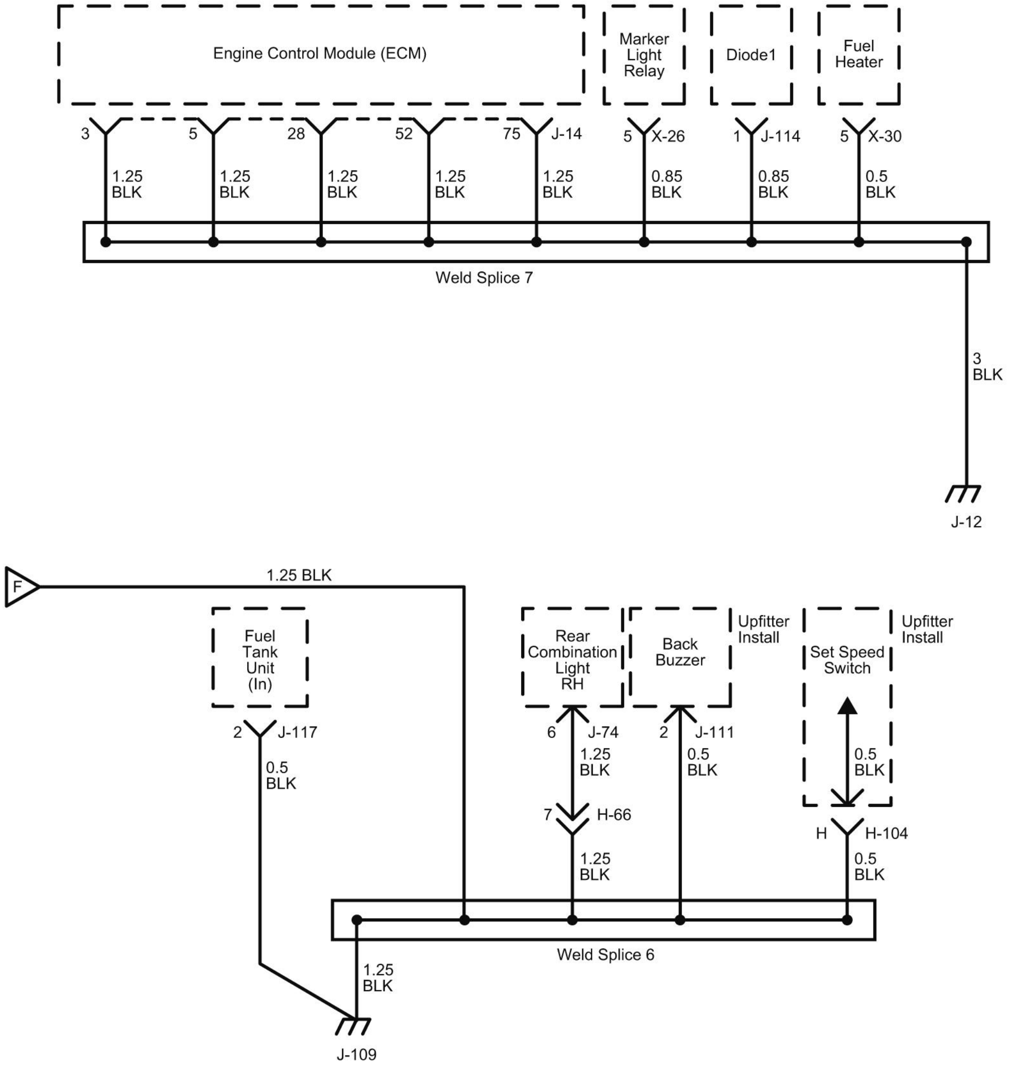

Electronic Hydraulic Control Unit(EHCU)
1
13
J-22
3 BLK
3 BLK
J-13


Fan Control Switch
Front Wiper Motor
1
B-160
1
B-75
3 BLK
1.25 BLK
Weld Splice 17
3 BLK
3 BLK
B-60
B-51



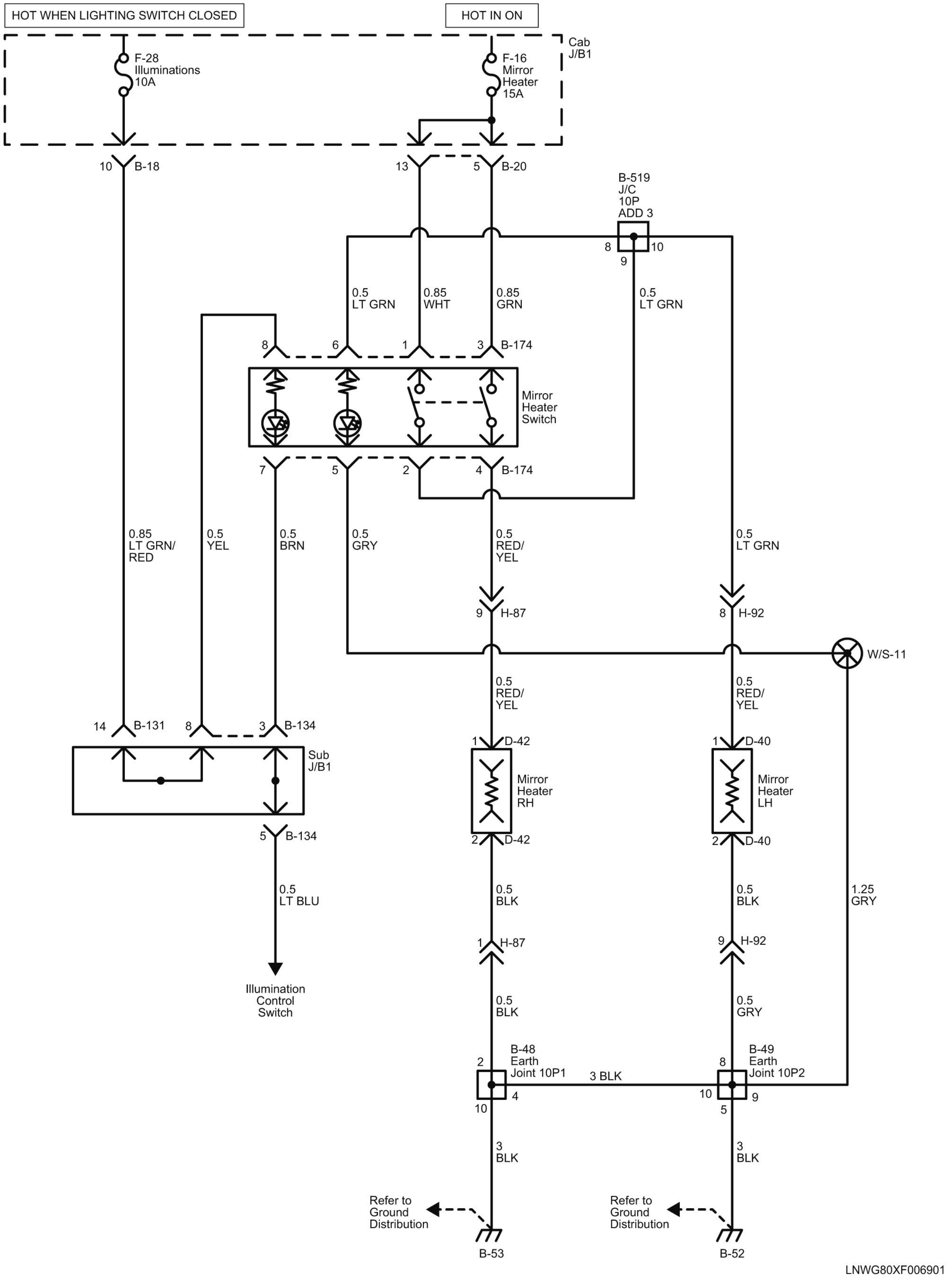

J/C 10P BASE 2
J/C 10P BASE 3
Cigarette Lighter
ACC Socket
10
B-506
1
B-507
1
B-34
1
B-213
2 GRY
2 GRY
0.85 BLK
2 BLK
Weld Splice 18
3 BLK
3 BLK
B-221
B-55

LNWG80XF000901

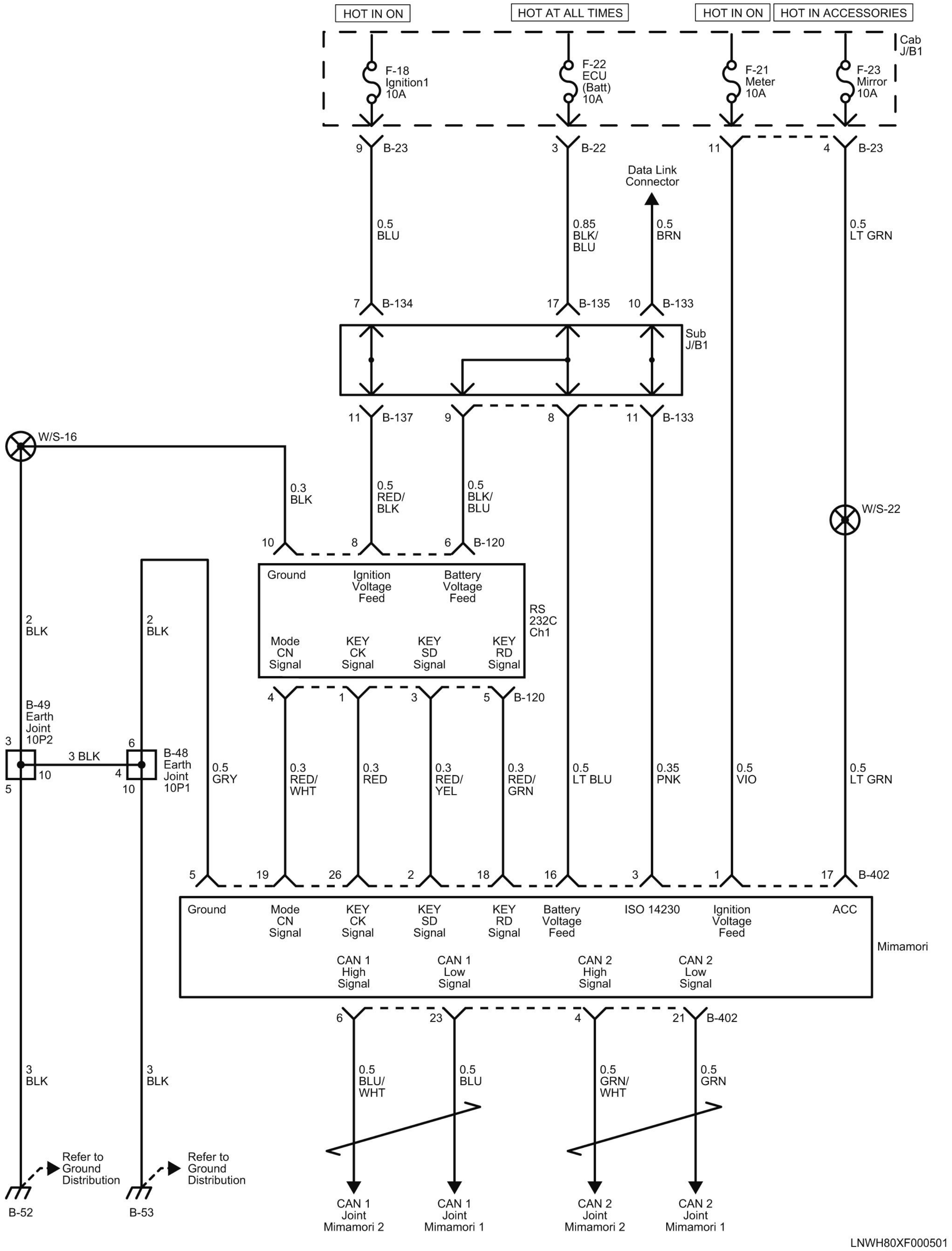

Engine Control Module (ECM)
Marker Light Relay
Diode1
Fuel Heater
3
5
28
52
75
J-14
5
X-26
1
J-114
5
X-30
1.25 BLK
1.25 BLK
1.25 BLK
1.25 BLK
1.25 BLK
0.85 BLK
0.85 BLK
0.5 BLK
Weld Splice 7
3 BLK
J-12
F
1.25 BLK
Fuel Tank Unit (In)
2
J-117
0.5 BLK
Rear Combination Light RH
Back Buzzer
Upfitter Install
Set Speed Switch
Upfitter Install
6
J-74
1.25 BLK
2
J-111
0.5 BLK
0.5 BLK
7
H-66
1.25 BLK
H
H-104
0.5 BLK
Weld Splice 6
1.25 BLK
J-109

LNWG80XF001001

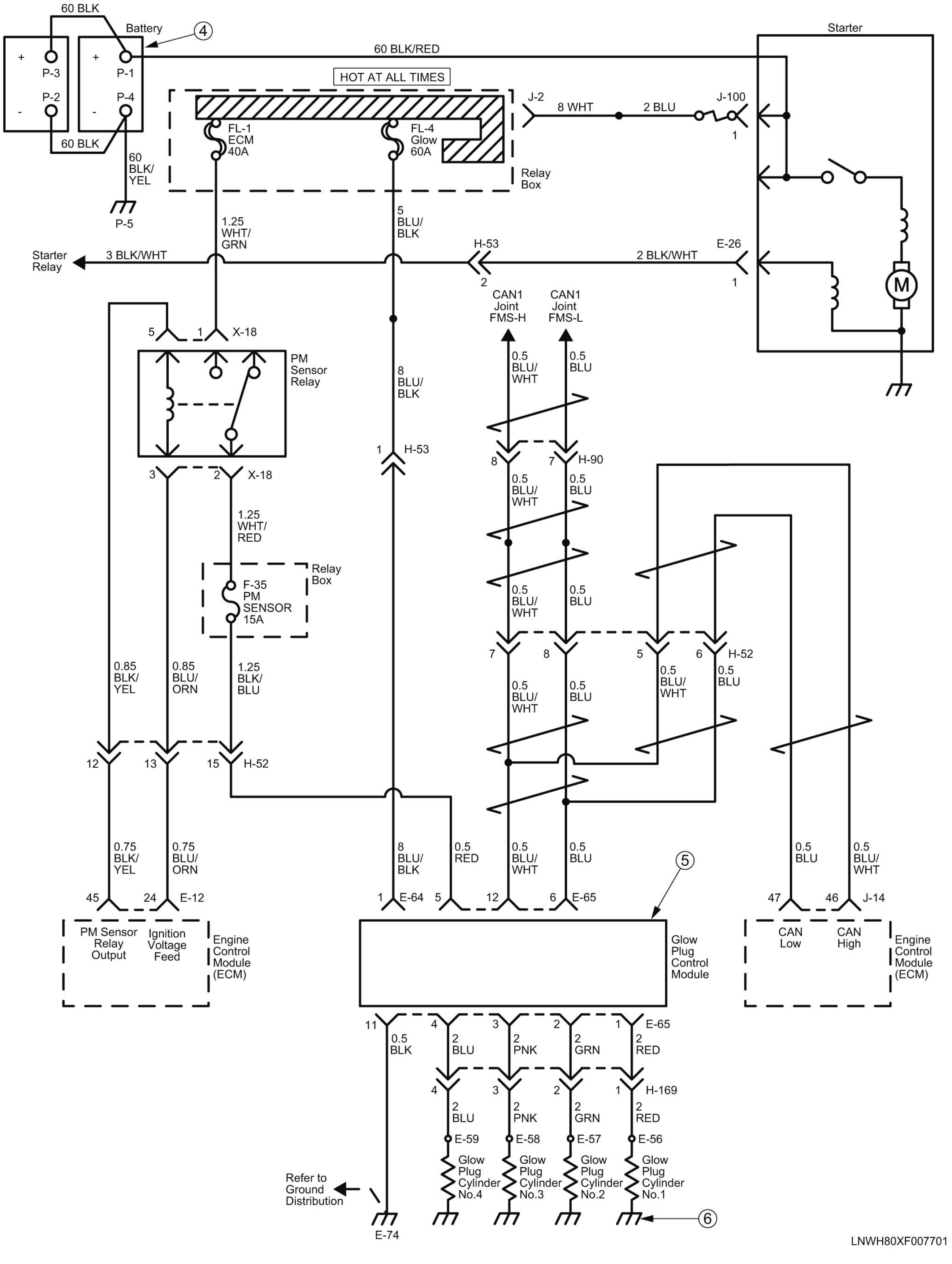
Heated Mirror Schematics


HOT WHEN LIGHTING SWITCH CLOSED
HOT IN ON
Cab J/B1
F-28 Illuminations 10A
F-16 Mirror Heater 15A
10 B-18
13
5 B-20
B-519 J/C 10P ADD 3
8
10
9
0.5 LT GRN
0.85 WHT
0.85 GRN
0.5 LT GRN
8
6
1
3 B-174
Mirror Heater Switch
7
5
2
4 B-174
0.85 LT GRN/ RED
0.5 YEL
0.5 BRN
0.5 GRY
0.5 RED/ YEL
0.5 LT GRN
9 H-87
8 H-92
W/S-11
0.5 RED/ YEL
0.5 RED/ YEL
14 B-131
8
3 B-134
Sub J/B1
1 D-42
Mirror Heater RH
2 D-42
1 D-40
Mirror Heater LH
2 D-40
5 B-134
0.5 LT BLU
Illumination Control Switch
0.5 BLK
0.5 BLK
1.25 GRY
1 H-87
9 H-92
0.5 BLK
0.5 GRY
2
B-48 Earth Joint 10P1
4
10
3 BLK
8
B-49 Earth Joint 10P2
10
5
9
3 BLK
3 BLK
Refer to Ground Distribution
Refer to Ground Distribution
B-53
B-52
LNWG80XF006901

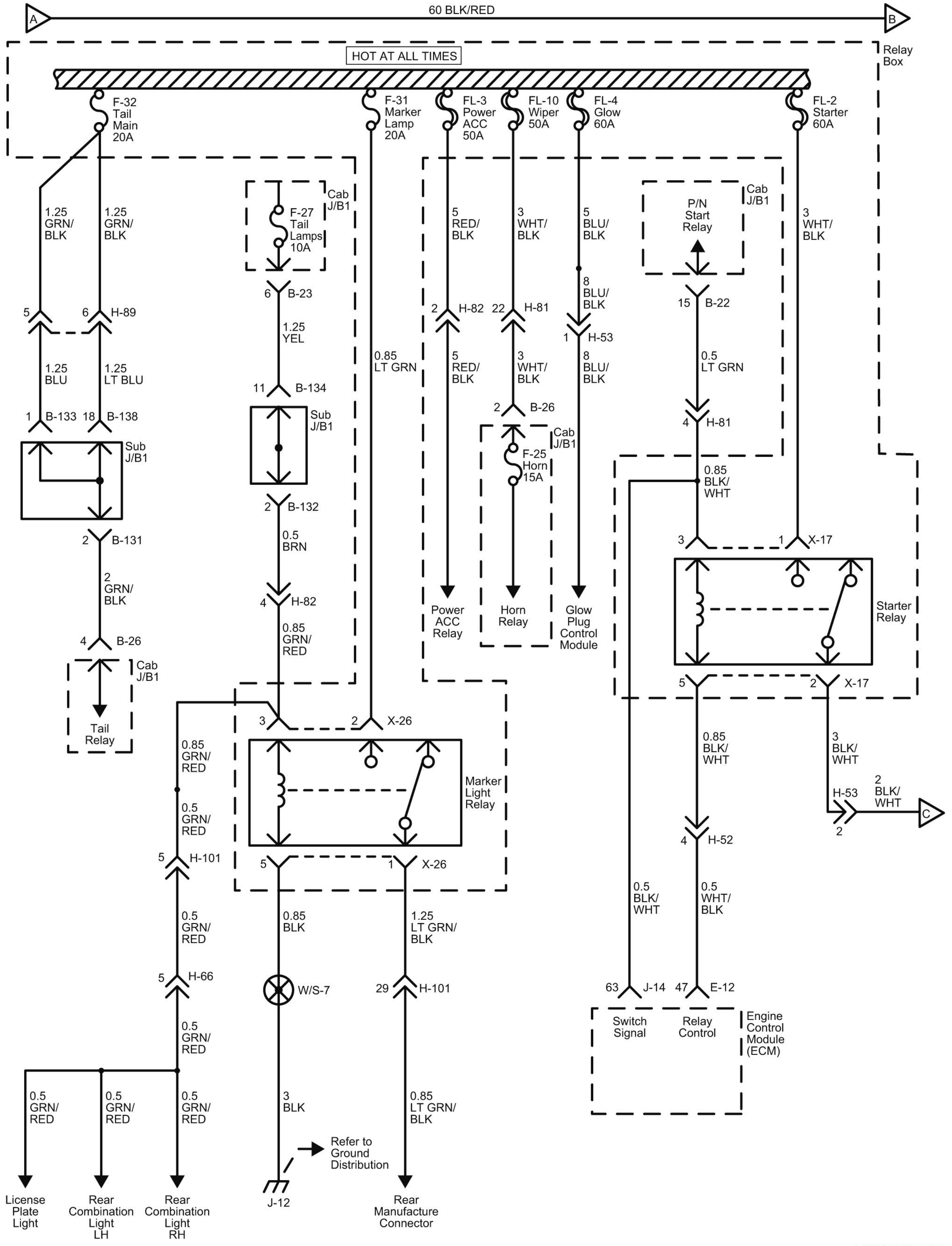
MIMAMORI Schematics


HOT IN ON
HOT AT ALL TIMES
HOT IN ON
HOT IN ACCESSORIES
Cab J/B1
F-18 Ignition1 10A
F-22 ECU (Batt) 10A
F-21 Meter 10A
F-23 Mirror 10A
9 B-23
3 B-22
11
4 B-23
Data Link Connector
0.5 BLU
0.85 BLK/ BLU
0.5 BRN
0.5 LT GRN
7 B-134
17 B-135
10 B-133
Sub J/B1
11 B-137
9
8
11 B-133
W/S-16
0.3 BLK
0.5 RED/ BLK
0.5 BLK/ BLU
W/S-22
10
8
6 B-120
Ground
Ignition Voltage Feed
Battery Voltage Feed
RS 232C Ch1
Mode CN Signal
KEY CK Signal
KEY SD Signal
KEY RD Signal
4
1
3
5 B-120
2 BLK
2 BLK
B-49 Earth Joint 10P2
3
3 BLK
10
5
6
4
10
B-48 Earth Joint 10P1
0.5 GRY
0.3 RED/ WHT
0.3 RED
0.3 RED/ YEL
0.3 RED/ GRN
0.5 LT BLU
0.35 PNK
0.5 VIO
0.5 LT GRN
5
19
26
2
18
16
3
1
17 B-402
Ground
Mode CN Signal
KEY CK Signal
KEY SD Signal
KEY RD Signal
Battery Voltage Feed
ISO 14230
Ignition Voltage Feed
ACC
Mimamori
CAN 1 High Signal
CAN 1 Low Signal
CAN 2 High Signal
CAN 2 Low Signal
6
23
4
21 B-402
3 BLK
3 BLK
0.5 BLU/ WHT
0.5 BLU
0.5 GRN/ WHT
0.5 GRN
Refer to Ground Distribution
Refer to Ground Distribution
B-52
B-53
CAN 1 Joint Mimamori 2
CAN 1 Joint Mimamori 1
CAN 2 Joint Mimamori 2
CAN 2 Joint Mimamori 1
LNWH80XF000501

Circuit Diagram (CHASSIS) (1 of 7)

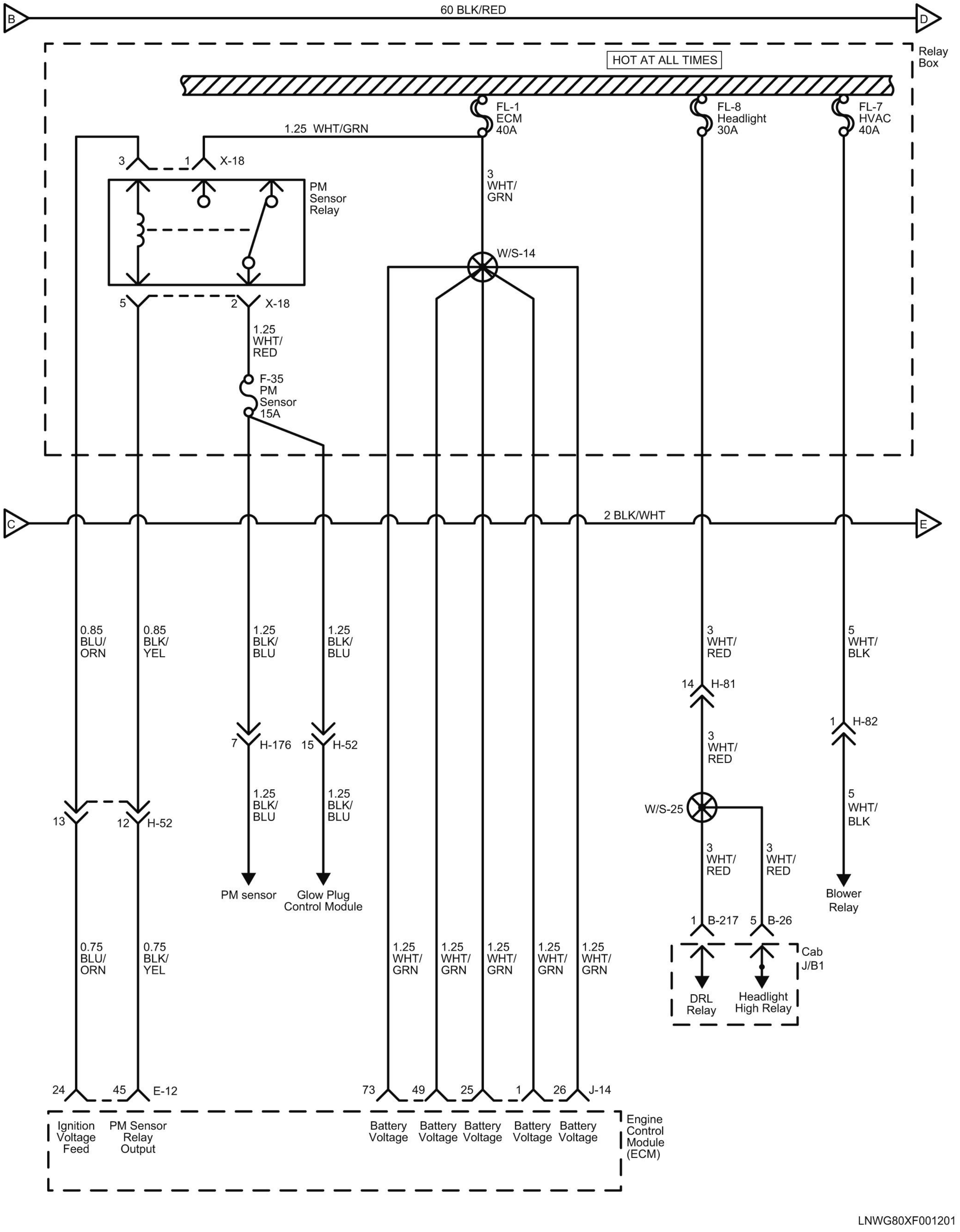

60 BLK
Battery
④
60 BLK/RED
Starter
+
P-3
P-1
P-2
P-4
-
60 BLK
60 BLK/YEL
P-5
HOT AT ALL TIMES
J-2
8 WHT
2 BLU
J-100
1
FL-1 ECM 40A
FL-4 Glow 60A
Relay Box
1.25 WHT/GRN
5 BLU/BLK
H-53
E-26
Starter Relay
3 BLK/WHT
2 BLK/WHT
2
1
M
CAN1 Joint FMS-H
CAN1 Joint FMS-L
5
1
X-18
PM Sensor Relay
0.5 BLU/WHT
0.5 BLU
8 BLU/BLK
1
H-53
8
7
H-90
3
2
X-18
1.25 WHT/RED
Relay Box
F-35 PM SENSOR 15A
0.85 BLK/YEL
0.85 BLU/ORN
1.25 BLK/BLU
7
8
5
6
H-52
12
13
15
H-52
0.75 BLK/YEL
0.75 BLU/ORN
0.5 RED
45
24
E-12
1
E-64
5
12
6
E-65
⑤
47
46
J-14
PM Sensor Relay Output
Ignition Voltage Feed
Engine Control Module (ECM)
Glow Plug Control Module
CAN Low
CAN High
Engine Control Module (ECM)
11
4
3
2
1
E-65
0.5 BLK
2 BLU
2 PNK
2 GRN
2 RED
H-169
E-59
E-58
E-57
E-56
Glow Plug Cylinder No.4
Glow Plug Cylinder No.3
Glow Plug Cylinder No.2
Glow Plug Cylinder No.1
Refer to Ground Distribution
E-74
⑥
LNWH80XF007701

Circuit Diagram (CHASSIS) (2 of 7)

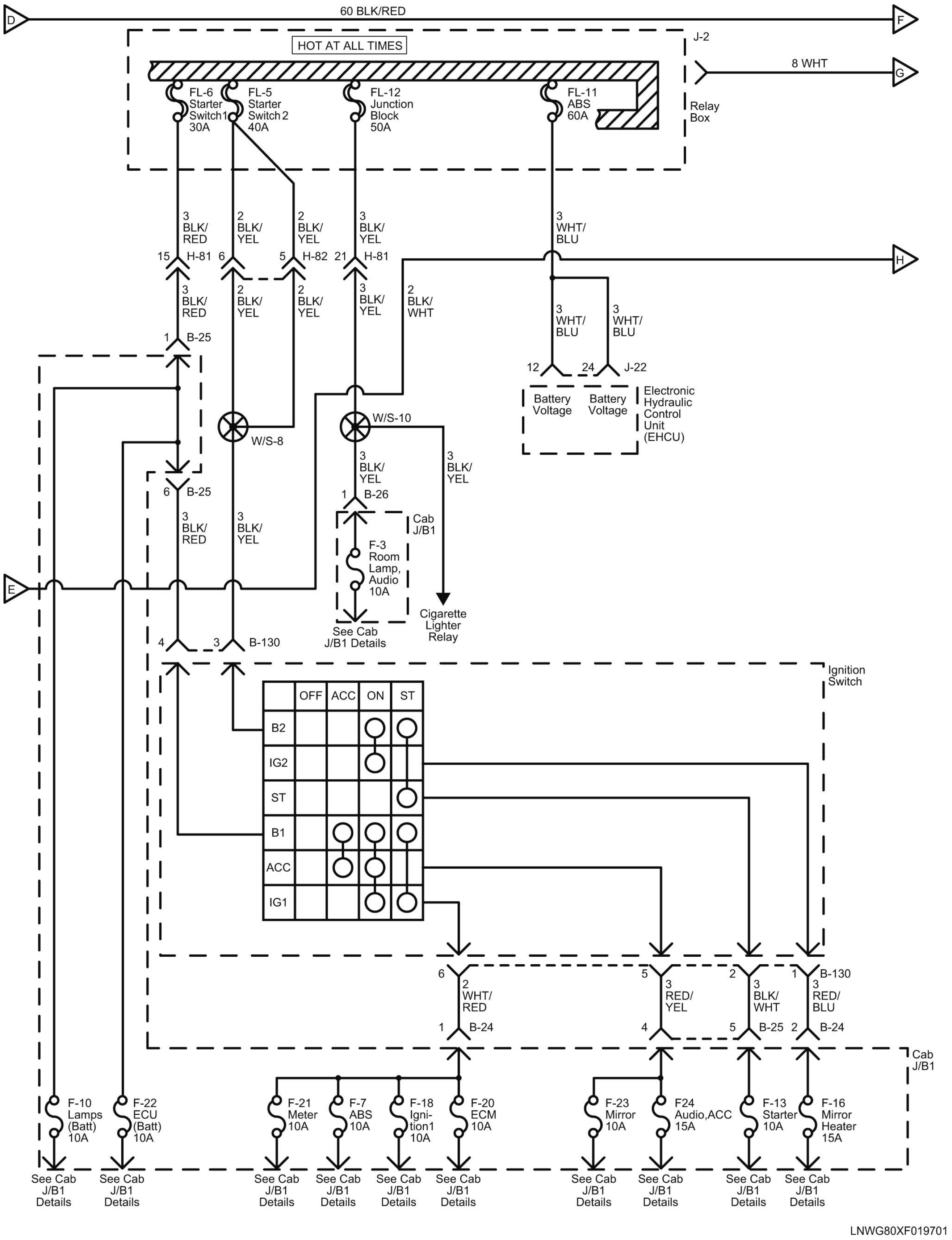

A
60 BLK/RED
B
HOT AT ALL TIMES
Relay Box
F-32 Tail Main 20A
F-31 Marker Lamp 20A
FL-3 Power ACC 50A
FL-10 Wiper 50A
FL-4 Glow 60A
FL-2 Starter 60A
1.25 GRN/ BLK
1.25 GRN/ BLK
Cab J/B1
F-27 Tail Lamps 10A
6 B-23
1.25 YEL
11 B-134
Sub J/B1
2 B-132
0.5 BRN
4 H-82
0.85 GRN/ RED
5
6 H-89
1.25 BLU
1.25 LT BLU
1 B-133 18 B-138
Sub J/B1
2 B-131
2 GRN/ BLK
4 B-26
Cab J/B1
Tail Relay
0.85 LT GRN
5 RED/ BLK
2 H-82
5 RED/ BLK
Power ACC Relay
3 WHT/ BLK
22 H-81
3 WHT/ BLK
2 B-26
Cab J/B1
F-25 Horn 15A
Horn Relay
5 BLU/ BLK
8 BLU/ BLK
1 H-53
8 BLU/ BLK
Glow Plug Control Module
Cab J/B1
P/N Start Relay
15 B-22
0.5 LT GRN
4 H-81
0.85 BLK/ WHT
3 WHT/ BLK
3
1 X-17
Starter Relay
5
2 X-17
0.85 BLK/ WHT
3 BLK/ WHT
H-53
2 BLK/ WHT
2
C
4 H-52
0.5 BLK/ WHT
0.5 WHT/ BLK
63 J-14 47 E-12
Switch Signal
Relay Control
Engine Control Module (ECM)
3
2 X-26
Marker Light Relay
0.85 GRN/ RED
0.5 GRN/ RED
5 H-101
5
1 X-26
0.5 GRN/ RED
0.85 BLK
1.25 LT GRN/ BLK
5 H-66
W/S-7
29 H-101
0.5 GRN/ RED
0.5 GRN/ RED
0.5 GRN/ RED
0.5 GRN/ RED
3 BLK
0.85 LT GRN/ BLK
Refer to Ground Distribution
J-12
License Plate Light
Rear Combination Light LH
Rear Combination Light RH
Rear Manufacture Connector

LNWG80XF007501

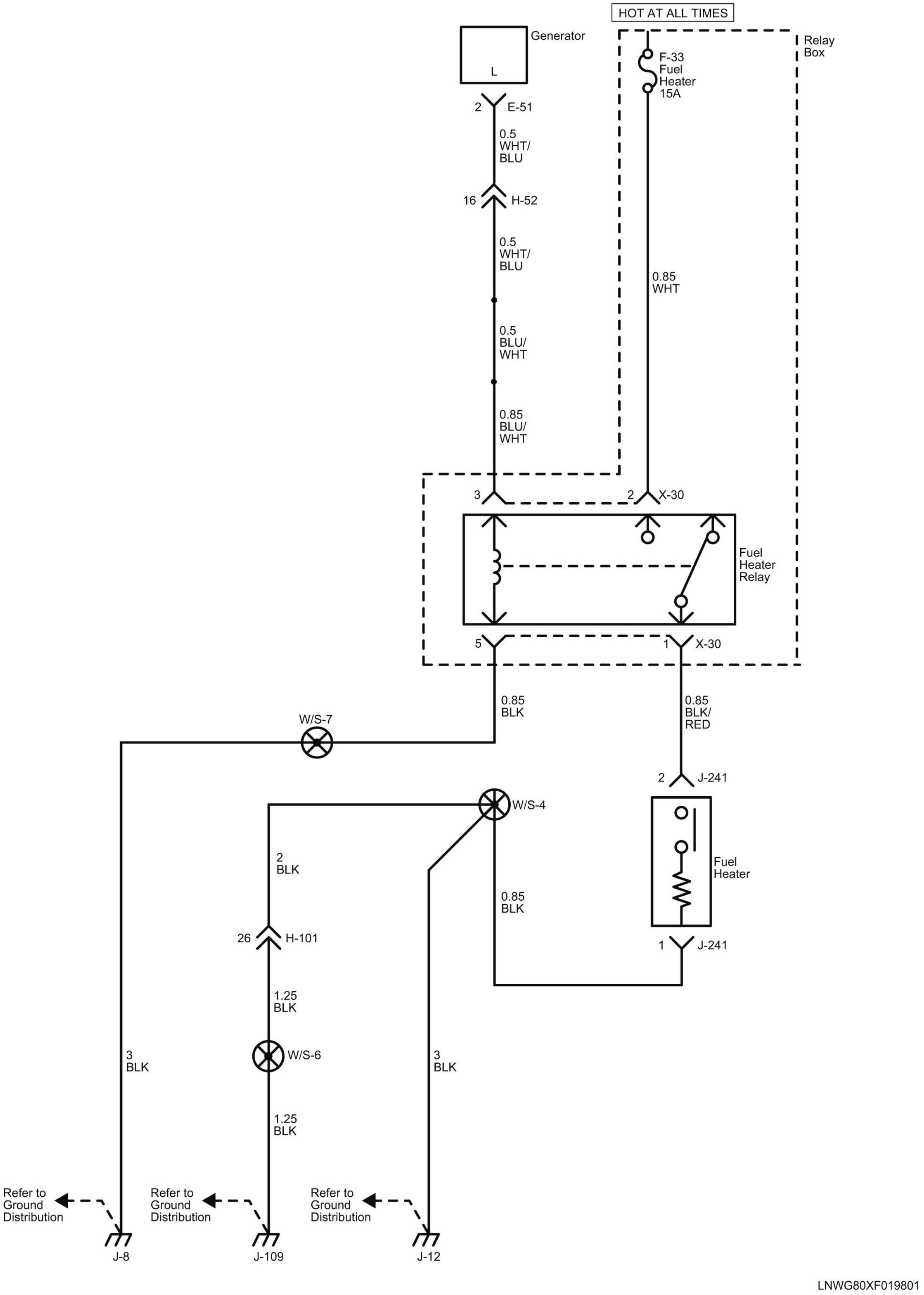
Circuit Diagram (CHASSIS) (3 of 7)


B
60 BLK/RED
D
HOT AT ALL TIMES
Relay Box
FL-1 ECM 40A
FL-8 Headlight 30A
FL-7 HVAC 40A
1.25 WHT/GRN
3
1
X-18
PM Sensor Relay
3 WHT/GRN
W/S-14
5
2
X-18
1.25 WHT/RED
F-35 PM Sensor 15A
C
2 BLK/WHT
E
0.85 BLU/ORN
0.85 BLK/YEL
1.25 BLK/BLU
1.25 BLK/BLU
3 WHT/RED
5 WHT/BLK
14
H-81
3 WHT/RED
1
H-82
7
H-176
15
H-52
1.25 BLK/BLU
1.25 BLK/BLU
5 WHT/BLK
W/S-25
3 WHT/RED
3 WHT/RED
13
12
H-52
PM sensor
Glow Plug Control Module
Blower Relay
1
B-217
5
B-26
Cab J/B1
DRL Relay
Headlight High Relay
0.75 BLU/ORN
0.75 BLK/YEL
1.25 WHT/GRN
1.25 WHT/GRN
1.25 WHT/GRN
1.25 WHT/GRN
1.25 WHT/GRN
24
45
E-12
73
49
25
1
26
J-14
Ignition Voltage Feed
PM Sensor Relay Output
Battery Voltage
Battery Voltage
Battery Voltage
Battery Voltage
Battery Voltage
Engine Control Module (ECM)
LNWG80XF001201

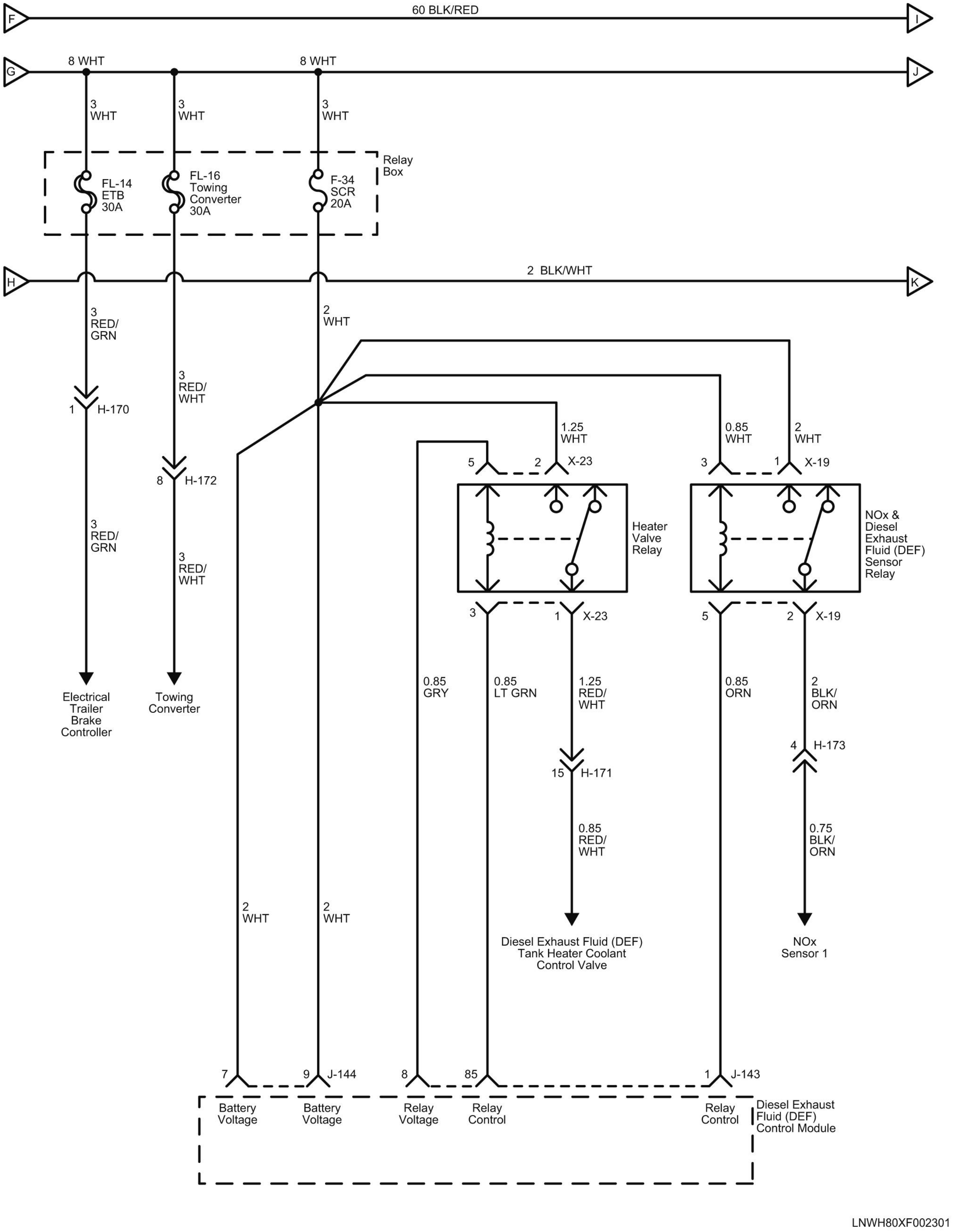
Circuit Diagram (CHASSIS) (4 of 7)


D
60 BLK/RED
F
J-2
HOT AT ALL TIMES
8 WHT
G
Relay Box
FL-6 Starter Switch1 30A
FL-5 Starter Switch 2 40A
FL-12 Junction Block 50A
FL-11 ABS 60A
3 BLK/ RED
2 BLK/ YEL
2 BLK/ YEL
3 BLK/ YEL
3 WHT/ BLU
15 H-81
6
5 H-82
21 H-81
H
3 BLK/ RED
2 BLK/ YEL
2 BLK/ YEL
3 BLK/ YEL
2 BLK/ WHT
3 WHT/ BLU
3 WHT/ BLU
1 B-25
12
24 J-22
Battery Voltage
Battery Voltage
Electronic Hydraulic Control Unit (EHCU)
W/S-8
W/S-10
6 B-25
3 BLK/ RED
3 BLK/ YEL
3 BLK/ YEL
3 BLK/ YEL
1 B-26
Cab J/B1
F-3 Room Lamp, Audio 10A
E
See Cab J/B1 Details
Cigarette Lighter Relay
4
3 B-130
Ignition Switch
OFF
ACC
ON
ST
B2
IG2
ST
B1
ACC
IG1
6
2 WHT/ RED
1 B-24
5
3 RED/ YEL
4
2
3 BLK/ WHT
5 B-25
1 B-130
3 RED/ BLU
2 B-24
Cab J/B1
F-10 Lamps (Batt) 10A
F-22 ECU (Batt) 10A
F-21 Meter 10A
F-7 ABS 10A
F-18 Igni-tion1 10A
F-20 ECM 10A
F-23 Mirror 10A
F24 Audio,ACC 15A
F-13 Starter 10A
F-16 Mirror Heater 15A
See Cab J/B1 Details
See Cab J/B1 Details
See Cab J/B1 Details
See Cab J/B1 Details
See Cab J/B1 Details
See Cab J/B1 Details
See Cab J/B1 Details
See Cab J/B1 Details
See Cab J/B1 Details
See Cab J/B1 Details
LNWG80XF019701

Circuit Diagram (CHASSIS) (5 of 7)

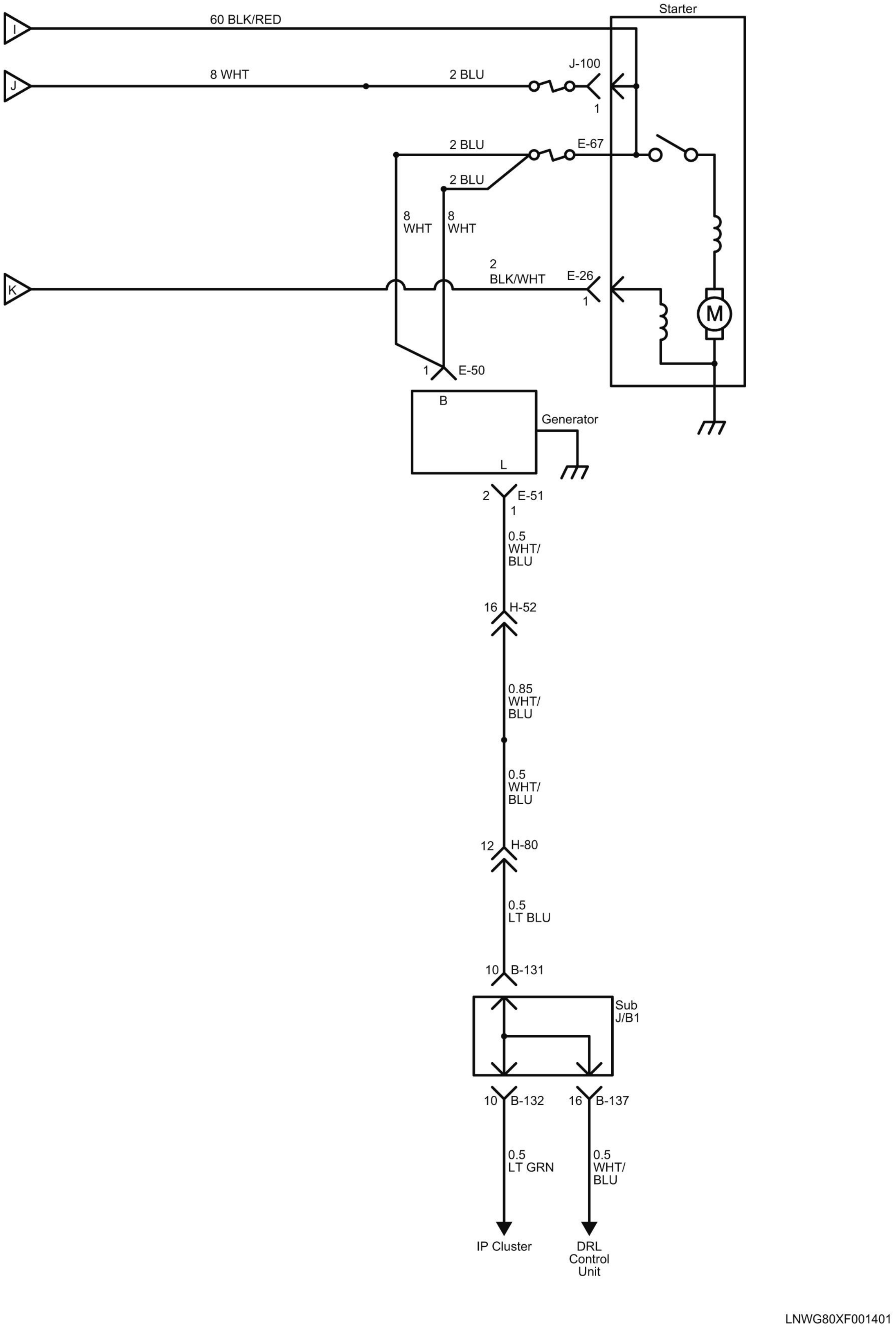

HOT AT ALL TIMES
Generator
L
2
E-51
0.5 WHT/ BLU
16
H-52
0.5 WHT/ BLU
0.5 BLU/ WHT
0.85 BLU/ WHT
Relay Box
F-33 Fuel Heater 15A
0.85 WHT
3
2
X-30
Fuel Heater Relay
5
1
X-30
0.85 BLK
0.85 BLK/ RED
W/S-7
2
J-241
W/S-4
Fuel Heater
2 BLK
0.85 BLK
26
H-101
1
J-241
1.25 BLK
W/S-6
3 BLK
1.25 BLK
3 BLK
Refer to Ground Distribution
Refer to Ground Distribution
Refer to Ground Distribution
J-8
J-109
J-12
LNWG80XF019801

Circuit Diagram (CHASSIS) (6 of 7)

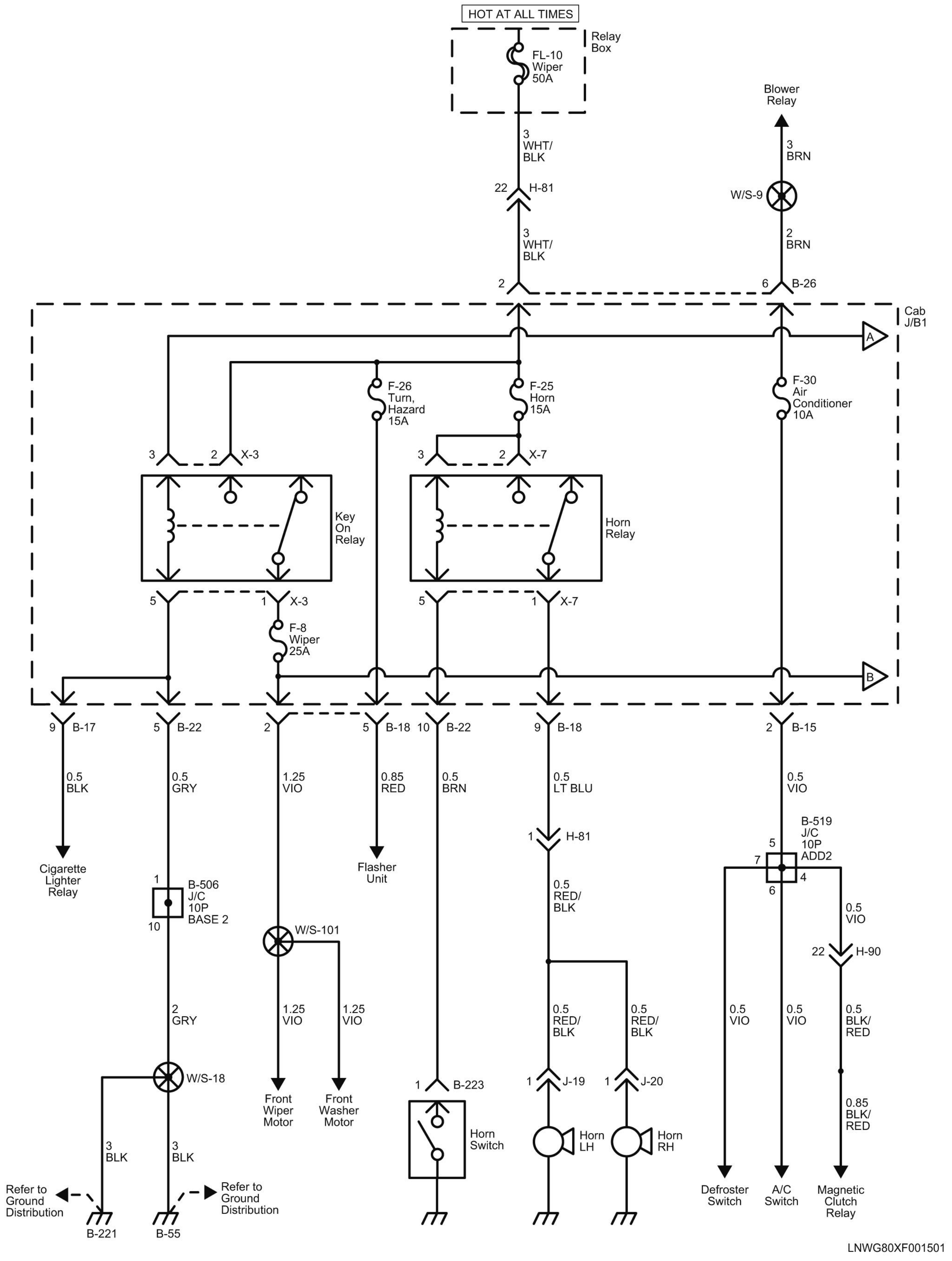


F
60 BLK/RED
I
G
8 WHT
8 WHT
J
3 WHT
3 WHT
3 WHT
Relay Box
FL-14 ETB 30A
FL-16 Towing Converter 30A
F-34 SCR 20A
H
2 BLK/WHT
K
3 RED/GRN
2 WHT
3 RED/WHT
1 H-170
8 H-172
3 RED/GRN
3 RED/WHT
Electrical Trailer Brake Controller
Towing Converter
1.25 WHT
0.85 WHT
2 WHT
5
2
X-23
3
1
X-19
Heater Valve Relay
NOx & Diesel Exhaust Fluid (DEF) Sensor Relay
3
1
X-23
5
2
X-19
0.85 GRY
0.85 LT GRN
1.25 RED/WHT
0.85 ORN
2 BLK/ORN
4 H-173
15 H-171
0.85 RED/WHT
0.75 BLK/ORN
Diesel Exhaust Fluid (DEF) Tank Heater Coolant Control Valve
NOx Sensor 1
2 WHT
2 WHT
7
9 J-144
8
85
1 J-143
Battery Voltage
Battery Voltage
Relay Voltage
Relay Control
Relay Control
Diesel Exhaust Fluid (DEF) Control Module
LNWH80XF002301

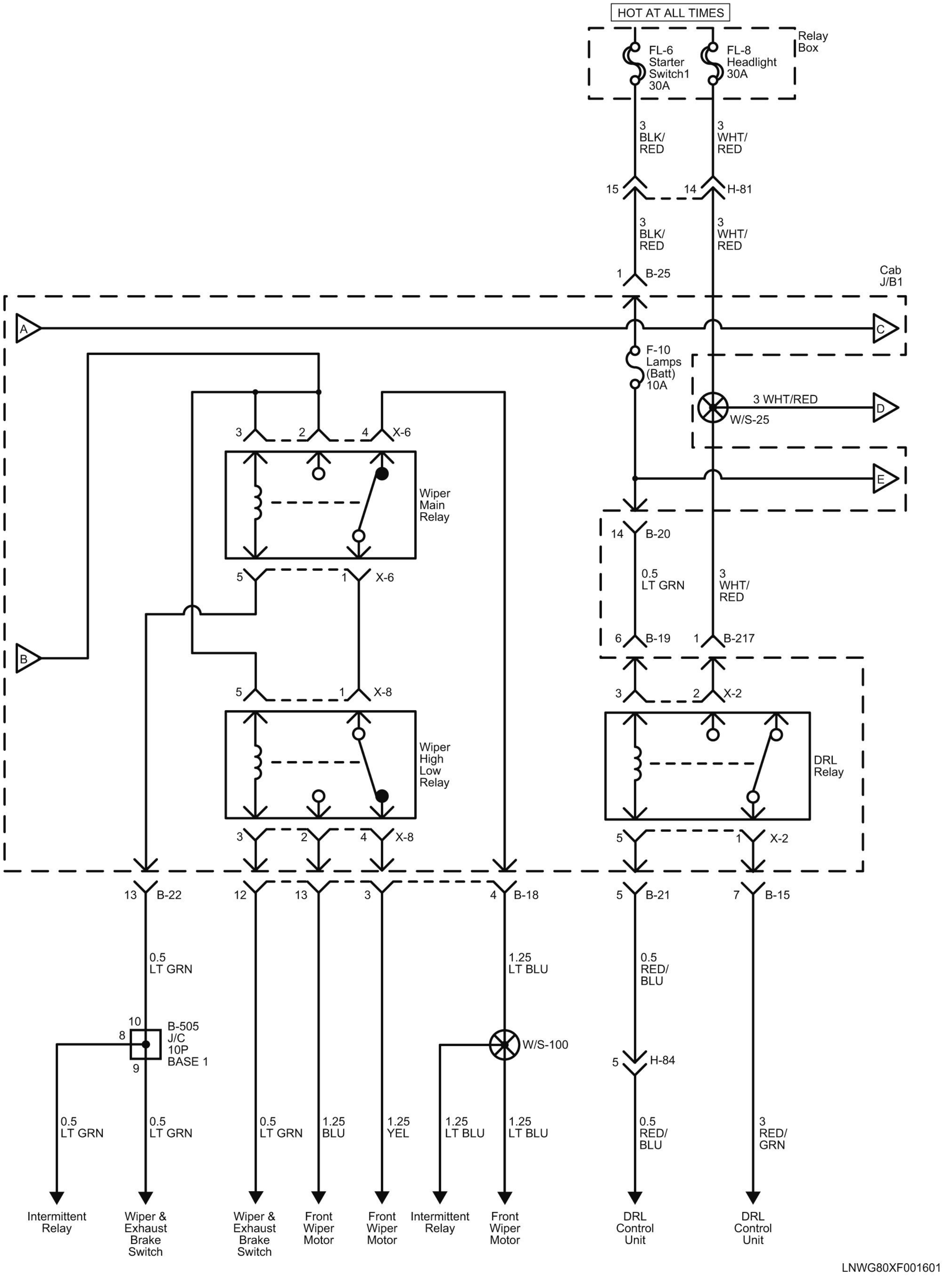
Circuit Diagram (CHASSIS) (7 of 7)


I
J
K
60 BLK/RED
8 WHT
2 BLU
J-100
1
Starter
2 BLU
E-67
2 BLU
8
WHT
8
WHT
2
BLK/WHT
E-26
1
M
1
E-50
B
Generator
L
2
E-51
1
0.5
WHT/
BLU
16
H-52
0.85
WHT/
BLU
0.5
WHT/
BLU
12
H-80
0.5
LT BLU
10
B-131
Sub
J/B1
10
B-132
16
B-137
0.5
LT GRN
0.5
WHT/
BLU
IP Cluster
DRL
Control
Unit
LNWG80XF001401

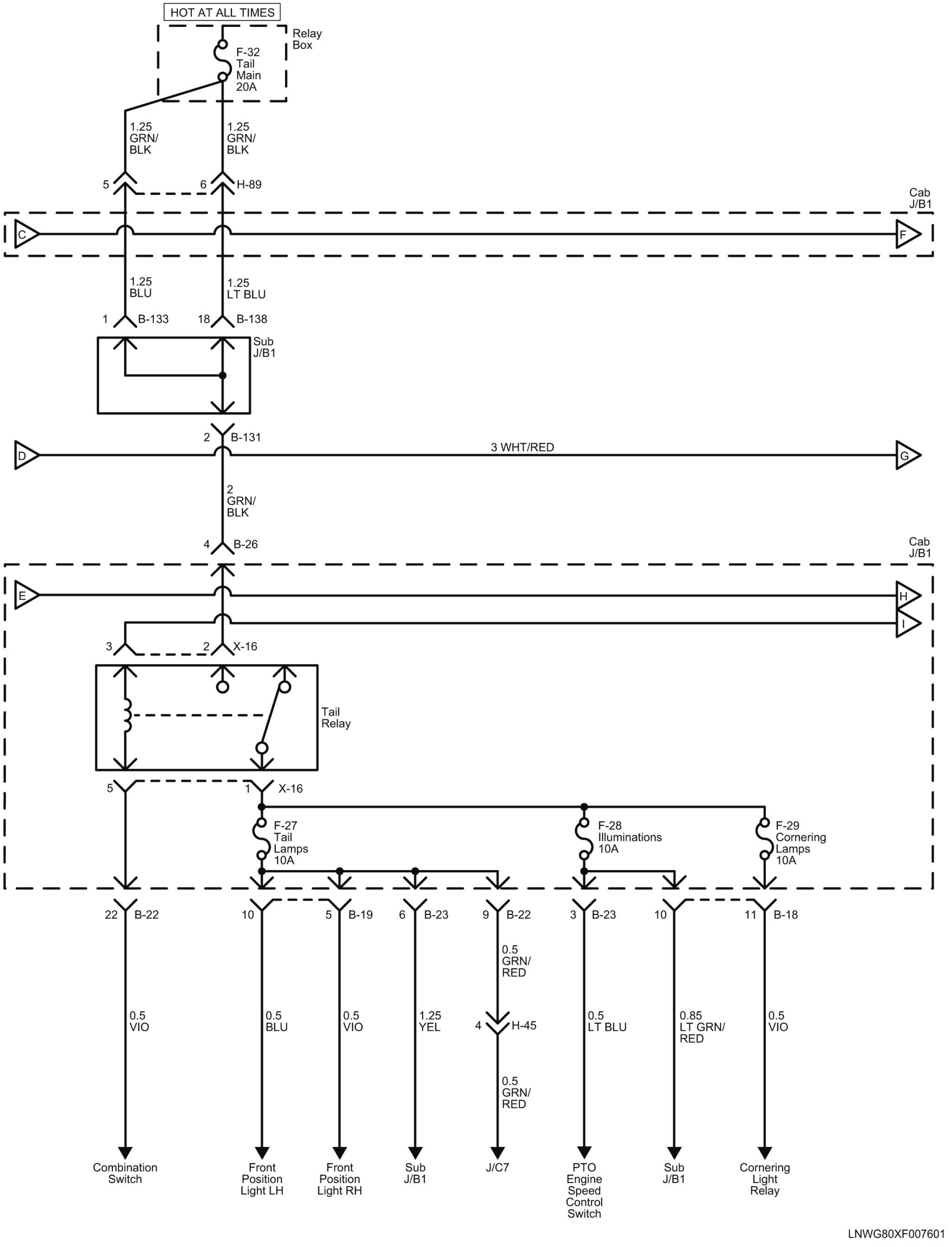
Circuit Diagram (CABIN) (1 of 10)


HOT AT ALL TIMES
Relay Box
FL-10 Wiper 50A
3 WHT/BLK
22 H-81
3 WHT/BLK
2
Blower Relay
3 BRN
W/S-9
2 BRN
6 B-26
Cab J/B1
A
F-26 Turn, Hazard 15A
F-25 Horn 15A
F-30 Air Conditioner 10A
3
2 X-3
3
2 X-7
Key On Relay
Horn Relay
5
1 X-3
5
1 X-7
F-8 Wiper 25A
B
9 B-17
5 B-22
2
5 B-18
10 B-22
9 B-18
2 B-15
0.5 BLK
0.5 GRY
1.25 VIO
0.85 RED
0.5 BRN
0.5 LT BLU
0.5 VIO
Cigarette Lighter Relay
1
B-506 J/C 10P BASE 2
10
Flasher Unit
1 H-81
0.5 RED/BLK
B-519 J/C 10P ADD2
5
7
4
6
W/S-101
0.5 VIO
22 H-90
2 GRY
1.25 VIO
1.25 VIO
0.5 RED/BLK
0.5 RED/BLK
0.5 VIO
0.5 VIO
0.5 BLK/RED
W/S-18
Front Wiper Motor
Front Washer Motor
1 B-223
1 J-19
1 J-20
0.85 BLK/RED
Horn Switch
Horn LH
Horn RH
3 BLK
3 BLK
Refer to Ground Distribution
Refer to Ground Distribution
B-221
B-55
Defroster Switch
A/C Switch
Magnetic Clutch Relay
LNWG80XF001501

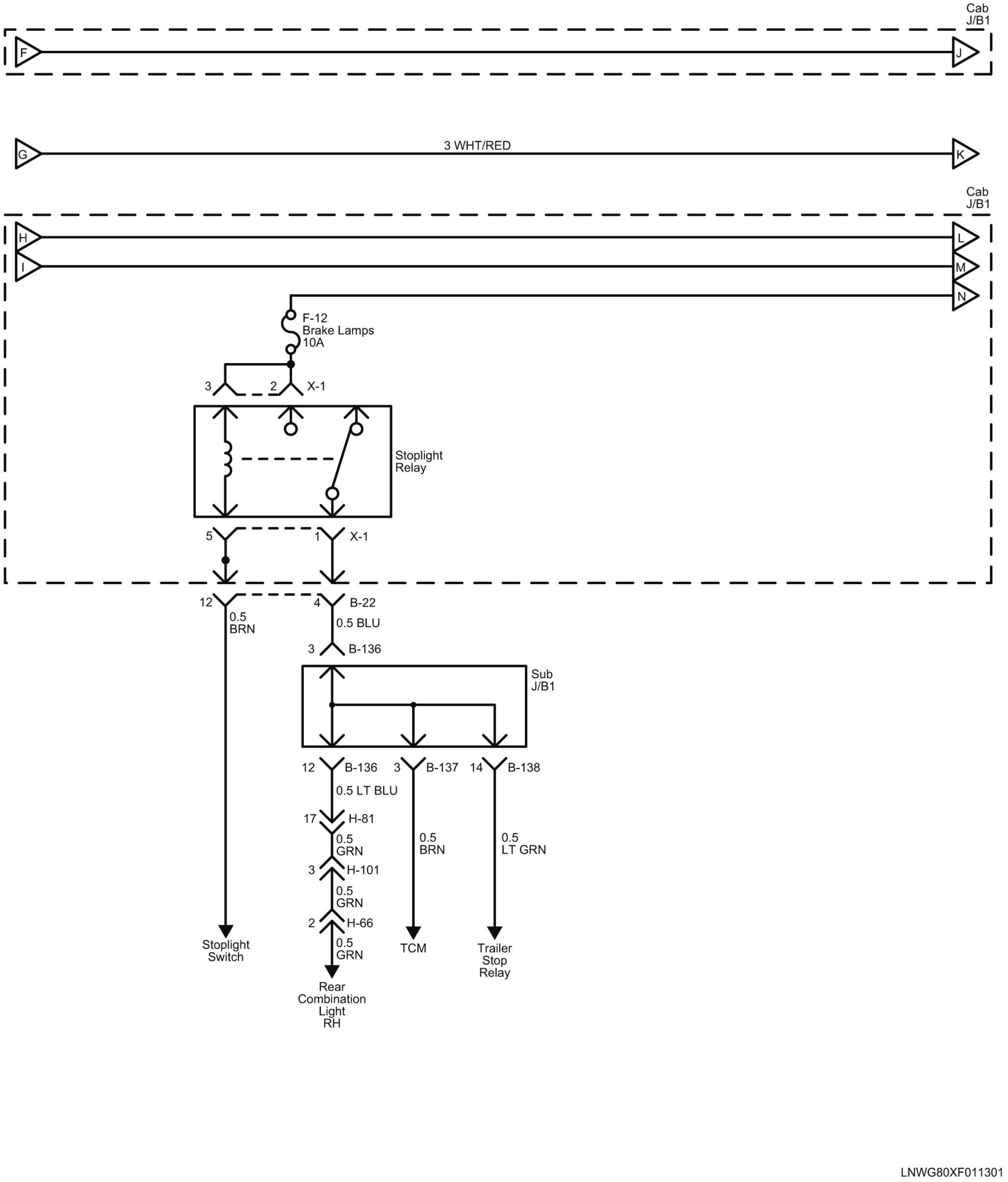
Circuit Diagram (CABIN) (2 of 10)


HOT AT ALL TIMES
Relay Box
FL-6 Starter Switch1 30A
FL-8 Headlight 30A
3 BLK/ RED
3 WHT/ RED
15
14
H-81
3 BLK/ RED
3 WHT/ RED
1
B-25
Cab J/B1
A
C
F-10 Lamps (Batt) 10A
3 WHT/RED
D
W/S-25
E
3
2
4
X-6
Wiper Main Relay
5
1
X-6
14
B-20
0.5 LT GRN
3 WHT/ RED
6
B-19
1
B-217
B
5
1
X-8
3
2
X-2
Wiper High Low Relay
DRL Relay
3
2
4
X-8
5
1
X-2
13
B-22
12
13
3
4
B-18
5
B-21
7
B-15
0.5 LT GRN
1.25 LT BLU
0.5 RED/ BLU
10
8
9
B-505 J/C 10P BASE 1
W/S-100
5
H-84
0.5 LT GRN
0.5 LT GRN
0.5 LT GRN
1.25 BLU
1.25 YEL
1.25 LT BLU
1.25 LT BLU
0.5 RED/ BLU
3 RED/ GRN
Intermittent Relay
Wiper & Exhaust Brake Switch
Wiper & Exhaust Brake Switch
Front Wiper Motor
Front Wiper Motor
Intermittent Relay
Front Wiper Motor
DRL Control Unit
DRL Control Unit
LNWG80XF001601

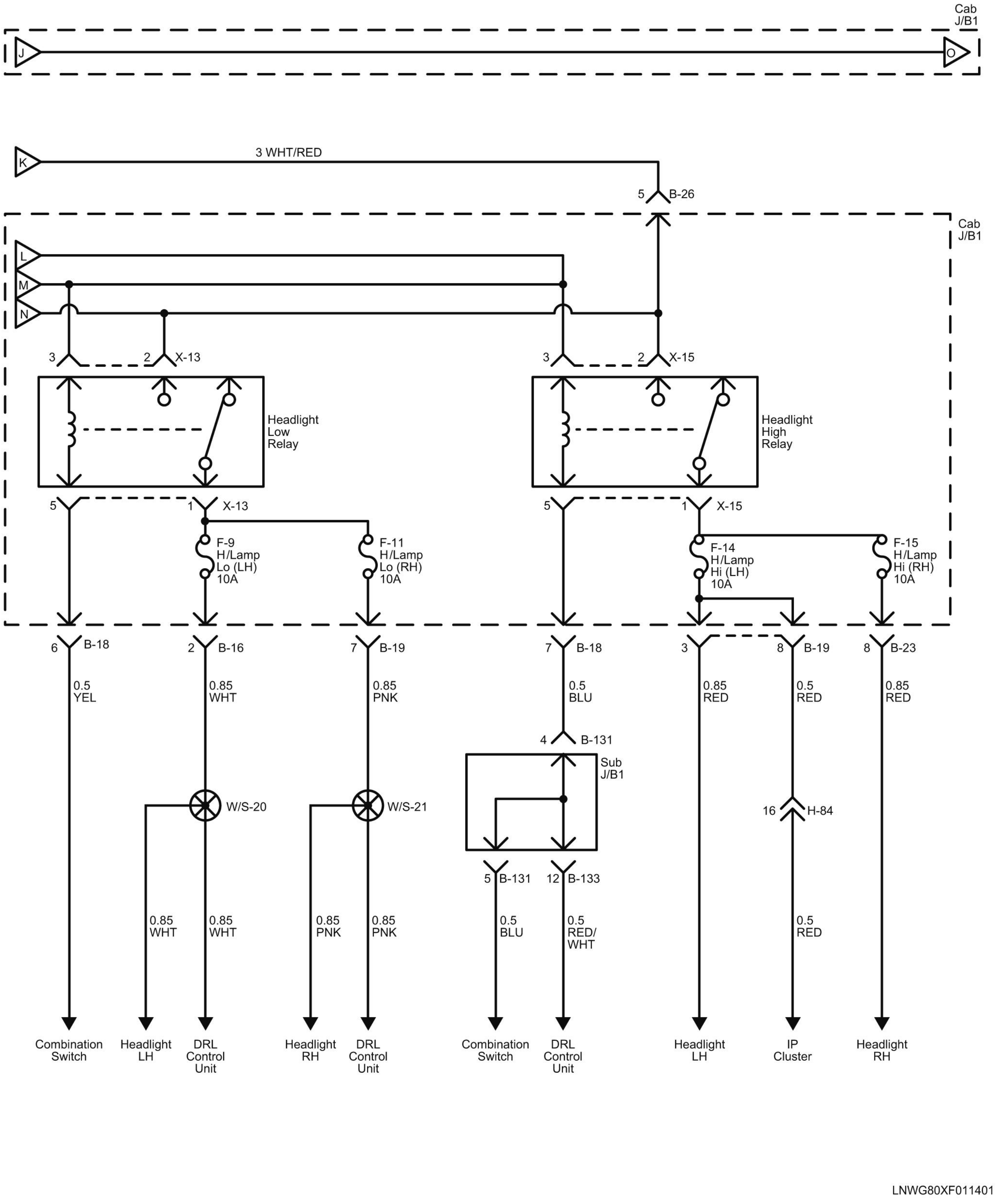
Circuit Diagram (CABIN) (3 of 10)


HOT AT ALL TIMES
Relay Box
F-32 Tail Main 20A
1.25 GRN/BLK
1.25 GRN/BLK
5
6
H-89
Cab J/B1
C
F
1.25 BLU
1.25 LT BLU
1 B-133
18 B-138
Sub J/B1
2 B-131
D
3 WHT/RED
G
2 GRN/BLK
4 B-26
Cab J/B1
E
H
I
3
2 X-16
Tail Relay
5
1 X-16
F-27 Tail Lamps 10A
F-28 Illuminations 10A
F-29 Cornering Lamps 10A
22 B-22
10
5 B-19
6 B-23
9 B-22
3 B-23
10
11 B-18
0.5 VIO
0.5 BLU
0.5 VIO
1.25 YEL
0.5 GRN/RED
4 H-45
0.5 GRN/RED
0.5 LT BLU
0.85 LT GRN/RED
0.5 VIO
Combination Switch
Front Position Light LH
Front Position Light RH
Sub J/B1
J/C7
PTO Engine Speed Control Switch
Sub J/B1
Cornering Light Relay
LNWG80XF007601

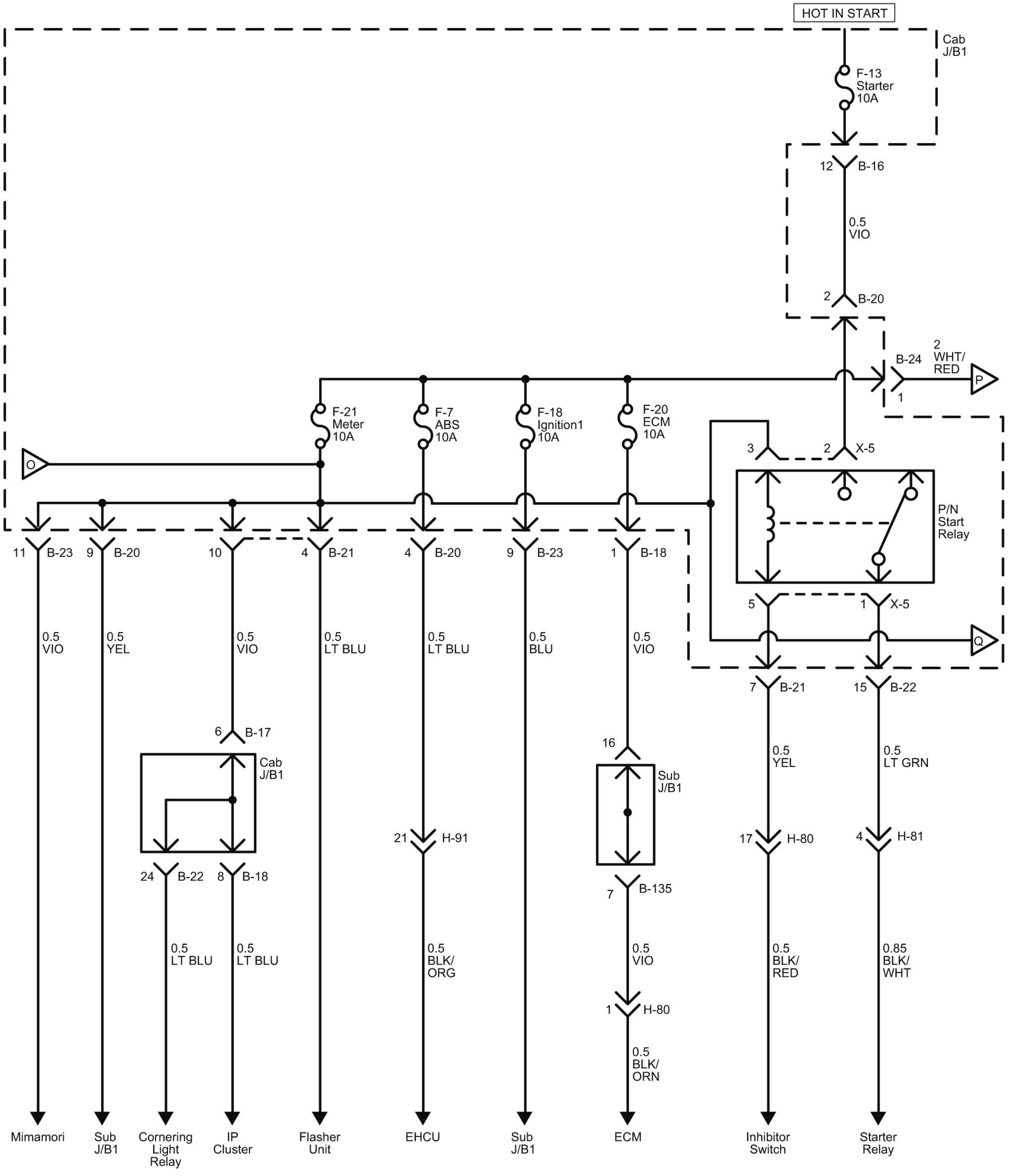
Circuit Diagram (CABIN) (4 of 10)


Cab
J/B1
F
J
G
3 WHT/RED
K
Cab
J/B1
H
L
I
M
N
F-12
Brake Lamps
10A
3
2
X-1
Stoplight
Relay
5
1
X-1
12
4
B-22
0.5
BRN
0.5 BLU
3
B-136
Sub
J/B1
12
B-136
3
B-137
14
B-138
0.5 LT BLU
17
H-81
0.5
GRN
3
H-101
0.5
GRN
2
H-66
0.5
GRN
0.5
BRN
0.5
LT GRN
Stoplight
Switch
Rear
Combination
Light
RH
TCM
Trailer
Stop
Relay
LNWG80XF011301

Circuit Diagram (CABIN) (5 of 10)

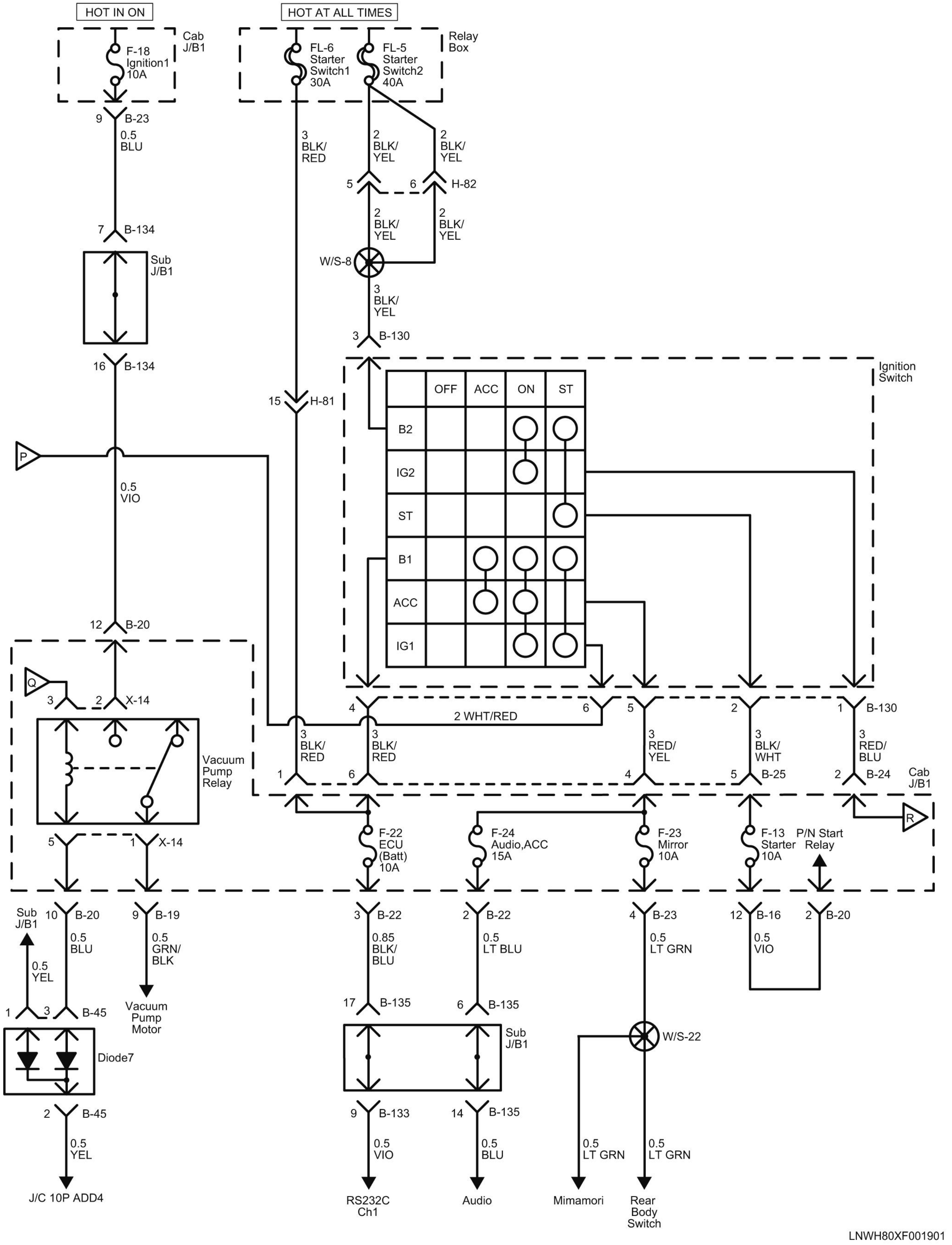

Cab
J/B1
J
O
K
3 WHT/RED
5
B-26
Cab
J/B1
L
M
N
3
2
X-13
3
2
X-15
Headlight
Low
Relay
Headlight
High
Relay
5
1
X-13
5
1
X-15
F-9
H/Lamp
Lo (LH)
10A
F-11
H/Lamp
Lo (RH)
10A
F-14
H/Lamp
Hi (LH)
10A
F-15
H/Lamp
Hi (RH)
10A
6
B-18
2
B-16
7
B-19
7
B-18
3
8
B-19
8
B-23
0.5
YEL
0.85
WHT
0.85
PNK
0.5
BLU
0.85
RED
0.5
RED
0.85
RED
4
B-131
Sub
J/B1
W/S-20
W/S-21
16
H-84
5
B-131
12
B-133
0.85
WHT
0.85
WHT
0.85
PNK
0.85
PNK
0.5
BLU
0.5
RED/
WHT
0.5
RED
Combination
Switch
Headlight
LH
DRL
Control
Unit
Headlight
RH
DRL
Control
Unit
Combination
Switch
DRL
Control
Unit
Headlight
LH
IP
Cluster
Headlight
RH
LNWG80XF011401

Circuit Diagram (CABIN) (6 of 10)

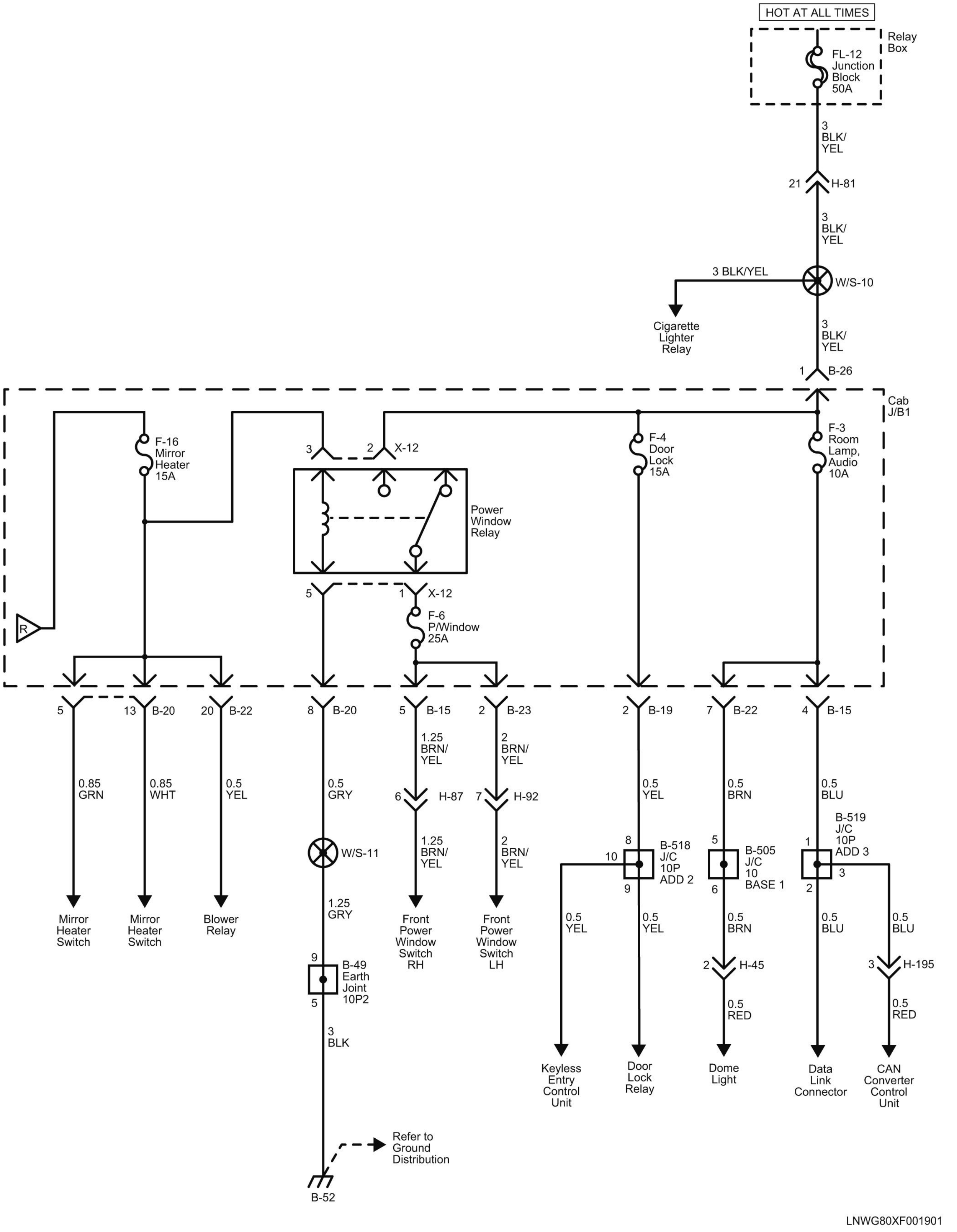

HOT IN START
Cab J/B1
F-13 Starter 10A
12 B-16
0.5 VIO
2 B-20
B-24
2 WHT/ RED
1
P
F-21 Meter 10A
F-7 ABS 10A
F-18 Ignition1 10A
F-20 ECM 10A
O
3
2 X-5
P/N Start Relay
5
1 X-5
Q
11 B-23
9 B-20
10
4 B-21
4 B-20
9 B-23
1 B-18
7 B-21
15 B-22
0.5 VIO
0.5 YEL
0.5 VIO
0.5 LT BLU
0.5 LT BLU
0.5 BLU
0.5 VIO
0.5 YEL
0.5 LT GRN
6 B-17
Cab J/B1
16
Sub J/B1
21 H-91
17 H-80
4 H-81
24 B-22
8 B-18
7 B-135
0.5 LT BLU
0.5 LT BLU
0.5 BLK/ ORG
0.5 VIO
0.5 BLK/ RED
0.85 BLK/ WHT
1 H-80
0.5 BLK/ ORN
Mimamori
Sub J/B1
Cornering Light Relay
IP Cluster
Flasher Unit
EHCU
Sub J/B1
ECM
Inhibitor Switch
Starter Relay

LNWG80XF001701

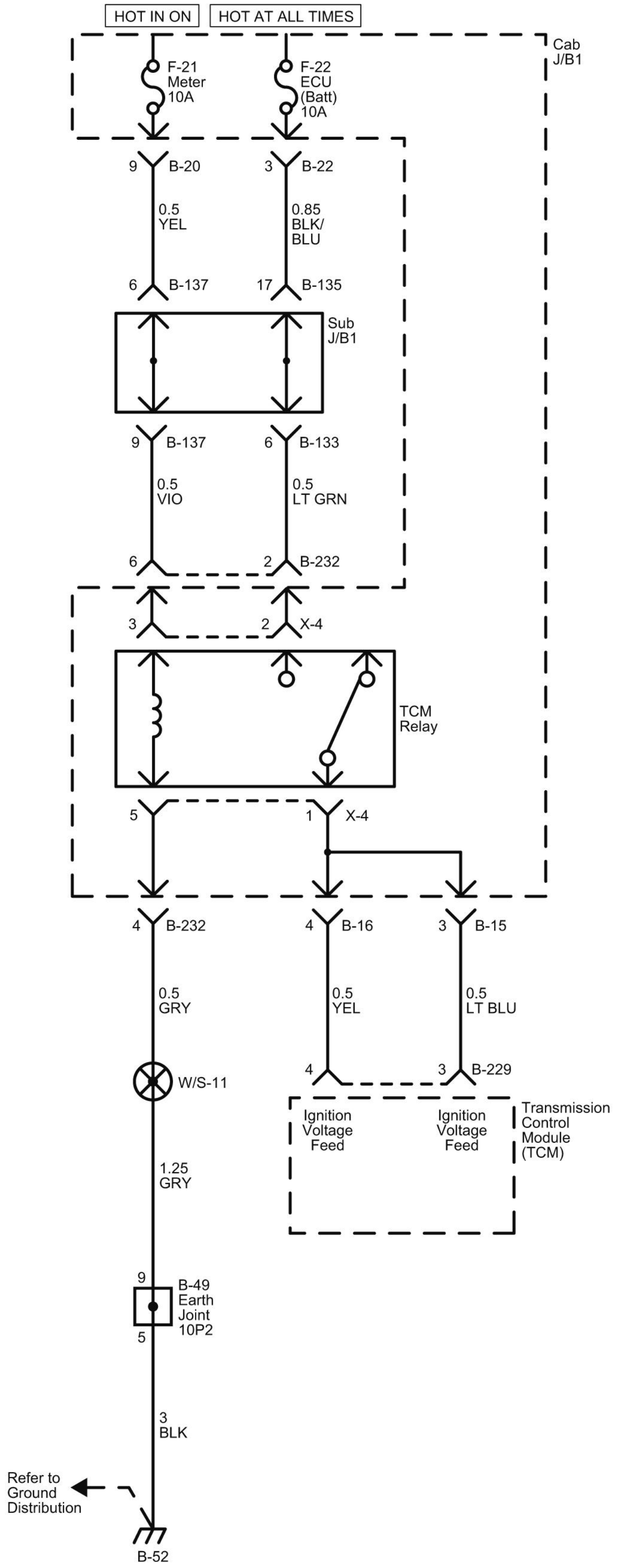
Circuit Diagram (CABIN) (7 of 10)


HOT IN ON
HOT AT ALL TIMES
Cab J/B1
F-18 Ignition1 10A
FL-6 Starter Switch1 30A
FL-5 Starter Switch2 40A
Relay Box
9 B-23
0.5 BLU
3 BLK/RED
2 BLK/YEL
2 BLK/YEL
5 6 H-82
2 BLK/YEL
2 BLK/YEL
W/S-8
3 BLK/YEL
3 B-130
7 B-134
Sub J/B1
16 B-134
15 H-81
Ignition Switch
OFF
ACC
ON
ST
B2
IG2
ST
B1
ACC
IG1
P
0.5 VIO
12 B-20
Q
3 2 X-14
Vacuum Pump Relay
4
6
2 WHT/RED
5
2
1 B-130
3 BLK/RED
3 BLK/RED
3 RED/YEL
3 BLK/WHT
3 RED/BLU
1
6
4
5 B-25
2 B-24
Cab J/B1
R
5
1 X-14
F-22 ECU (Batt) 10A
F-24 Audio,ACC 15A
F-23 Mirror 10A
F-13 Starter 10A
P/N Start Relay
Sub J/B1
10 B-20
9 B-19
3 B-22
2 B-22
4 B-23
12 B-16
2 B-20
0.5 BLU
0.5 GRN/BLK
0.85 BLK/BLU
0.5 LT BLU
0.5 LT GRN
0.5 VIO
0.5 YEL
1 3 B-45
Vacuum Pump Motor
17 B-135
6 B-135
Sub J/B1
W/S-22
Diode7
2 B-45
9 B-133
14 B-135
0.5 YEL
0.5 VIO
0.5 BLU
0.5 LT GRN
0.5 LT GRN
J/C 10P ADD4
RS232C Ch1
Audio
Mimamori
Rear Body Switch
LNWH80XF001901

Circuit Diagram (CABIN) (8 of 10)

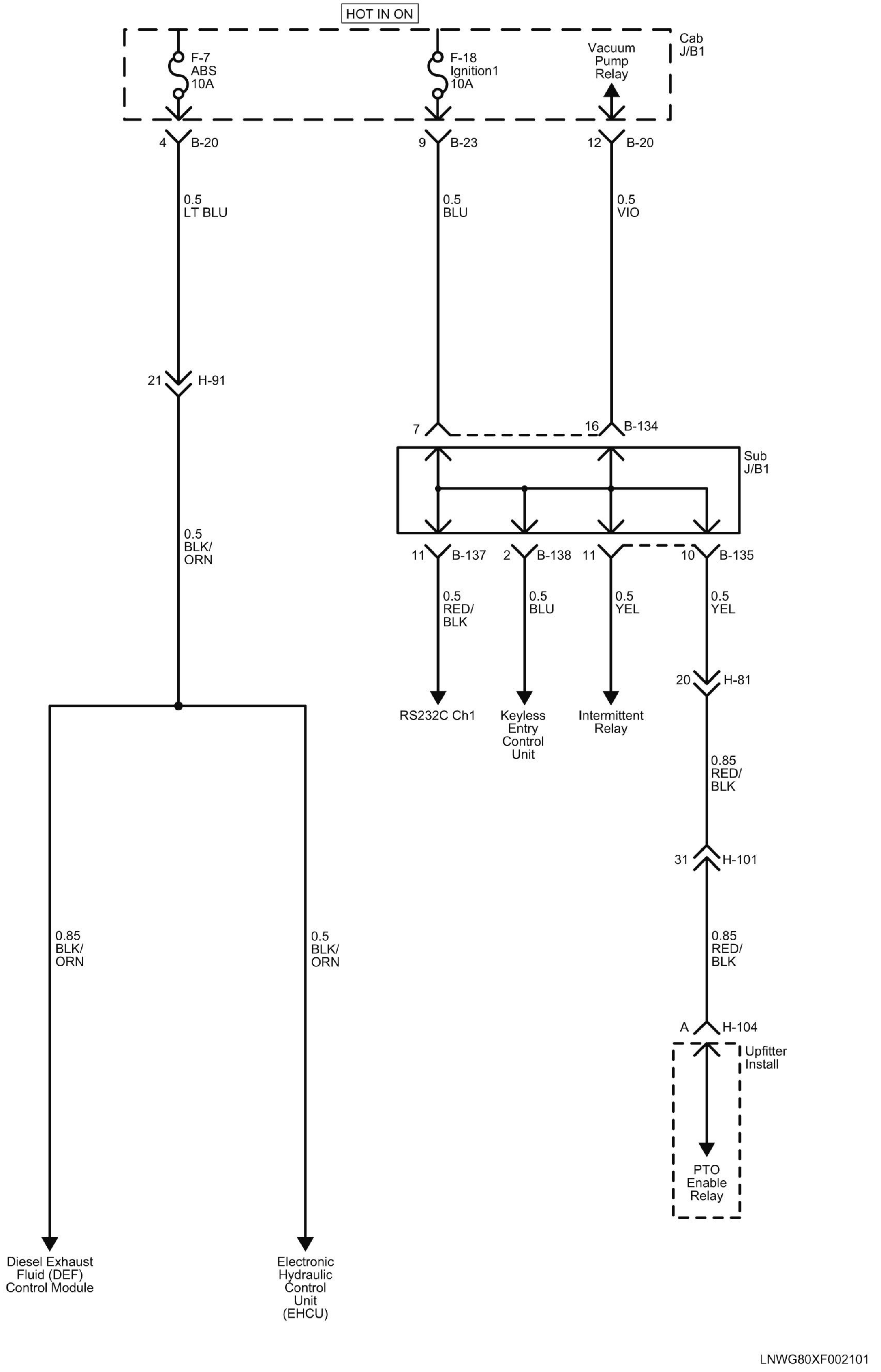

HOT AT ALL TIMES
Relay Box
FL-12 Junction Block 50A
3 BLK/YEL
21 H-81
3 BLK/YEL
3 BLK/YEL
W/S-10
Cigarette Lighter Relay
3 BLK/YEL
1 B-26
Cab J/B1
F-16 Mirror Heater 15A
3
2 X-12
Power Window Relay
F-4 Door Lock 15A
F-3 Room Lamp, Audio 10A
R
5
1 X-12
F-6 P/Window 25A
5
13 B-20
20 B-22
8 B-20
5 B-15
2 B-23
2 B-19
7 B-22
4 B-15
0.85 GRN
0.85 WHT
0.5 YEL
0.5 GRY
1.25 BRN/YEL
2 BRN/YEL
6 H-87
7 H-92
1.25 BRN/YEL
2 BRN/YEL
0.5 YEL
0.5 BRN
0.5 BLU
W/S-11
8
10
B-518 J/C 10P ADD 2
9
5
B-505 J/C 10 BASE 1
6
1
B-519 J/C 10P ADD 3
3
2
Mirror Heater Switch
Mirror Heater Switch
Blower Relay
1.25 GRY
Front Power Window Switch RH
Front Power Window Switch LH
0.5 YEL
0.5 YEL
0.5 BRN
0.5 BLU
0.5 BLU
9
B-49 Earth Joint 10P2
5
2 H-45
3 H-195
0.5 RED
0.5 RED
3 BLK
Keyless Entry Control Unit
Door Lock Relay
Dome Light
Data Link Connector
CAN Converter Control Unit
Refer to Ground Distribution
B-52
LNWG80XF001901

Circuit Diagram (CABIN) (9 of 10)

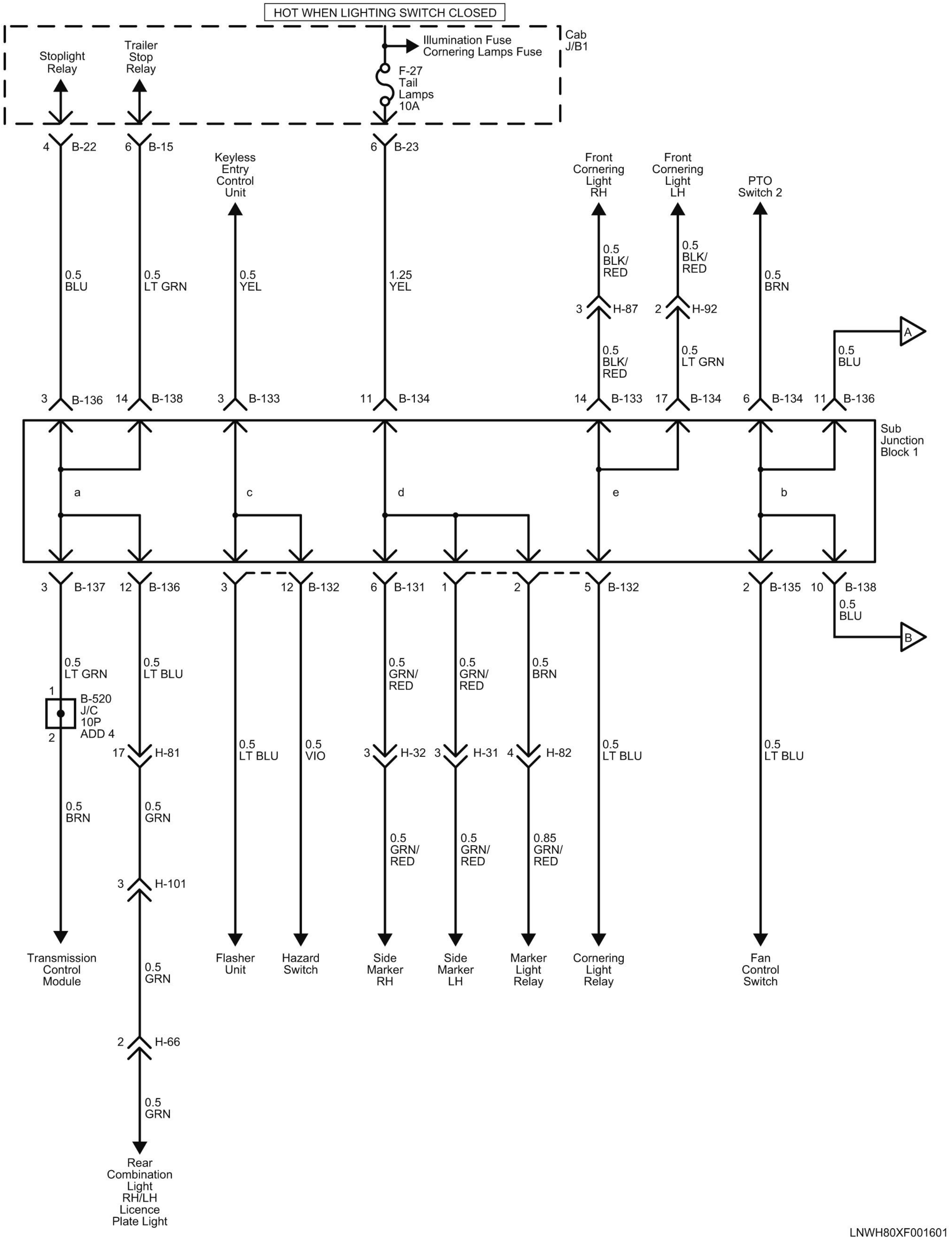

HOT IN ON
HOT AT ALL TIMES
Cab J/B1
F-21 Meter 10A
F-22 ECU (Batt) 10A
9 B-20
3 B-22
0.5 YEL
0.85 BLK/ BLU
6 B-137
17 B-135
Sub J/B1
9 B-137
6 B-133
0.5 VIO
0.5 LT GRN
6
2 B-232
3
2 X-4
TCM Relay
5
1 X-4
4 B-232
4 B-16
3 B-15
0.5 GRY
0.5 YEL
0.5 LT BLU
4
3 B-229
W/S-11
Ignition Voltage Feed
Ignition Voltage Feed
Transmission Control Module (TCM)
1.25 GRY
9
B-49 Earth Joint 10P2
5
3 BLK
Refer to Ground Distribution
B-52

LNWG80XF002001

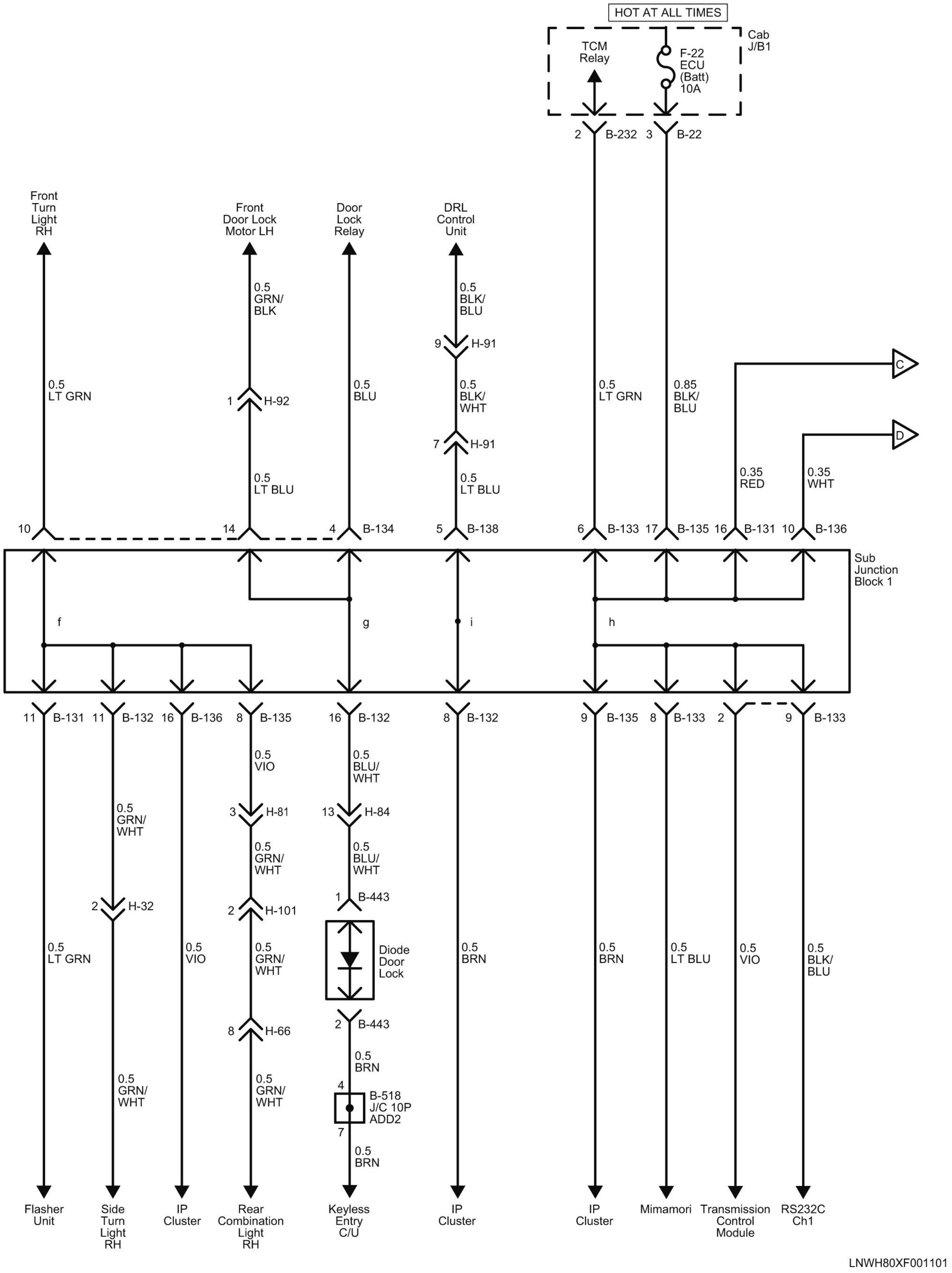
Circuit Diagram (CABIN) (10 of 10)

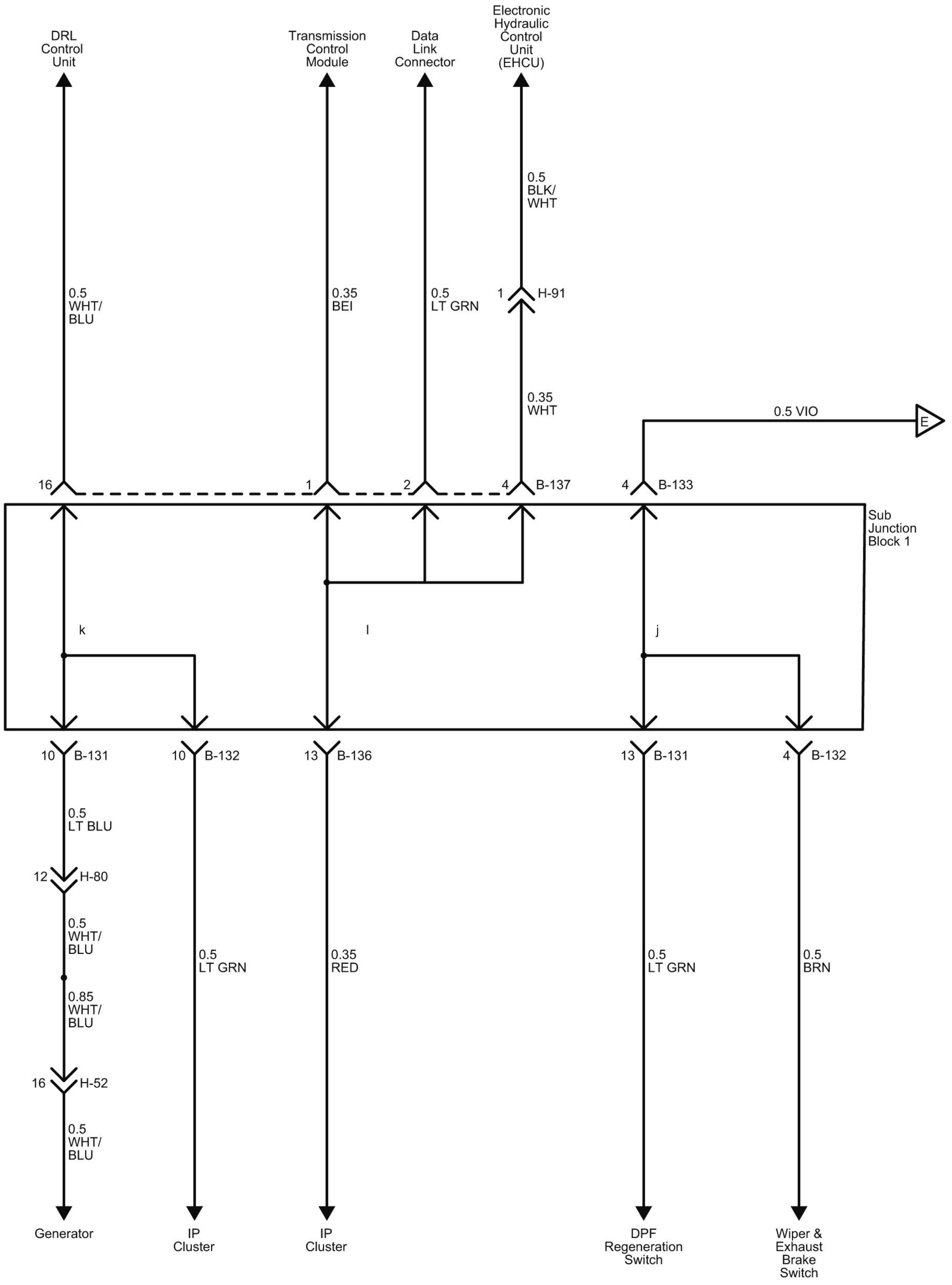

HOT IN ON
F-7
ABS
10A
F-18
Ignition1
10A
Vacuum
Pump
Relay
Cab
J/B1
4
B-20
9
B-23
12
B-20
0.5
LT BLU
0.5
BLU
0.5
VIO
21
H-91
7
16
B-134
Sub
J/B1
0.5
BLK/
ORN
11
B-137
2
B-138
11
10
B-135
0.5
RED/
BLK
0.5
BLU
0.5
YEL
0.5
YEL
RS232C Ch1
Keyless
Entry
Control
Unit
Intermittent
Relay
20
H-81
0.85
RED/
BLK
31
H-101
0.85
RED/
BLK
A
H-104
Upfitter
Install
PTO
Enable
Relay
0.85
BLK/
ORN
0.5
BLK/
ORN
Diesel Exhaust
Fluid (DEF)
Control Module
Electronic
Hydraulic
Control
Unit
(EHCU)
LNWG80XF002101

Sub Junction Block 1 Schematics

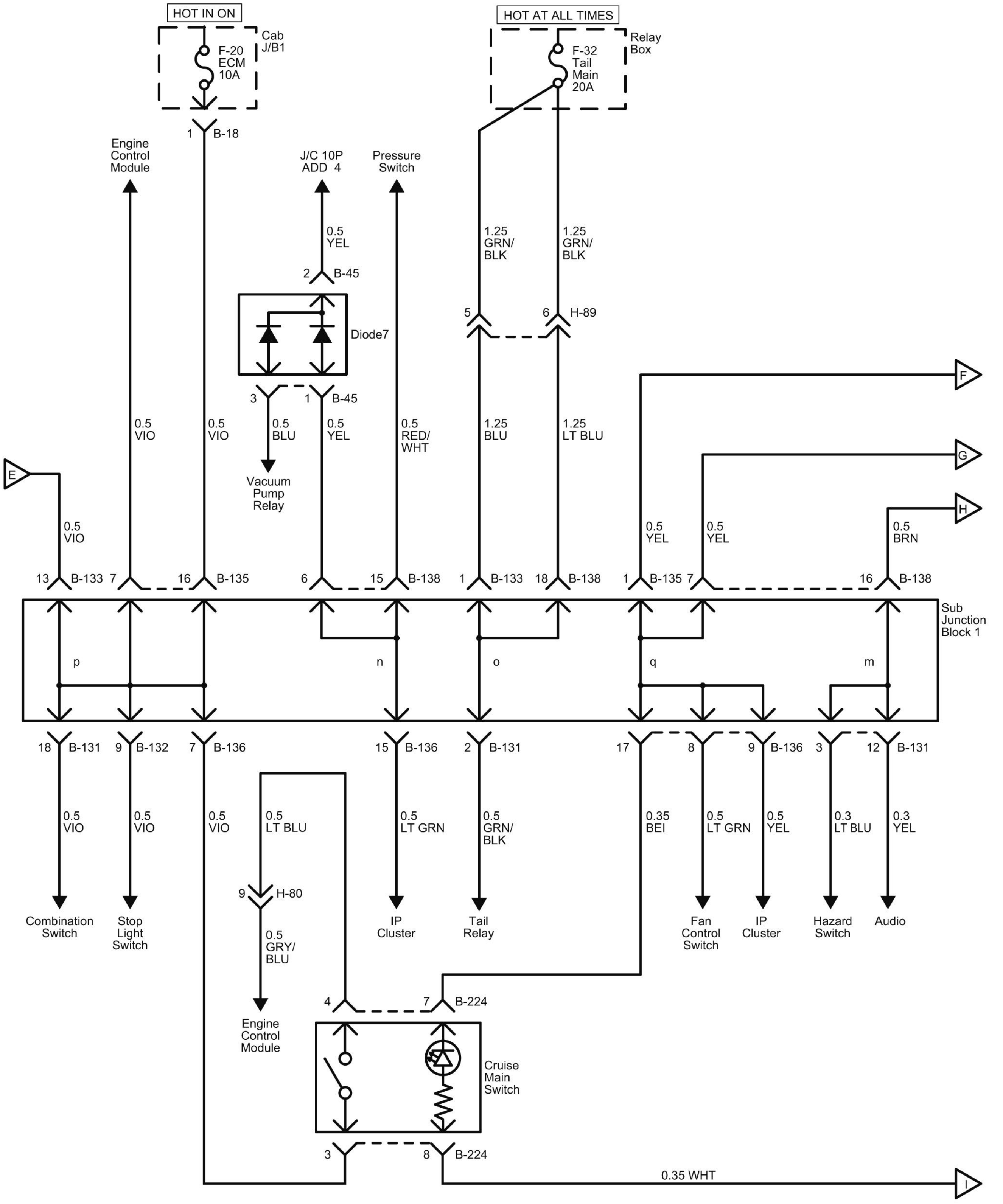

HOT WHEN LIGHTING SWITCH CLOSED
Cab J/B1
Stoplight Relay
Trailer Stop Relay
Illumination Fuse
Cornering Lamps Fuse
F-27 Tail Lamps 10A
4 B-22
6 B-15
6 B-23
Keyless Entry Control Unit
Front Cornering Light RH
Front Cornering Light LH
PTO Switch 2
0.5 BLU
0.5 LT GRN
0.5 YEL
1.25 YEL
0.5 BLK/ RED
0.5 BLK/ RED
0.5 BRN
3 H-87
2 H-92
0.5 BLK/ RED
0.5 LT GRN
0.5 BLU
A
3 B-136
14 B-138
3 B-133
11 B-134
14 B-133
17 B-134
6 B-134
11 B-136
Sub Junction Block 1
a
c
d
e
b
3 B-137
12 B-136
3
12 B-132
6 B-131
1
2
5 B-132
2 B-135
10 B-138
0.5 BLU
B
0.5 LT GRN
0.5 LT BLU
0.5 GRN/ RED
0.5 GRN/ RED
0.5 BRN
1
B-520 J/C 10P ADD 4
2
17 H-81
0.5 LT BLU
0.5 VIO
3 H-32
3 H-31
4 H-82
0.5 LT BLU
0.5 LT BLU
0.5 BRN
0.5 GRN
0.5 GRN/ RED
0.5 GRN/ RED
0.85 GRN/ RED
3 H-101
Transmission Control Module
Flasher Unit
Hazard Switch
Side Marker RH
Side Marker LH
Marker Light Relay
Cornering Light Relay
Fan Control Switch
0.5 GRN
2 H-66
0.5 GRN
Rear Combination Light RH/LH Licence Plate Light

LNWH80XF001601

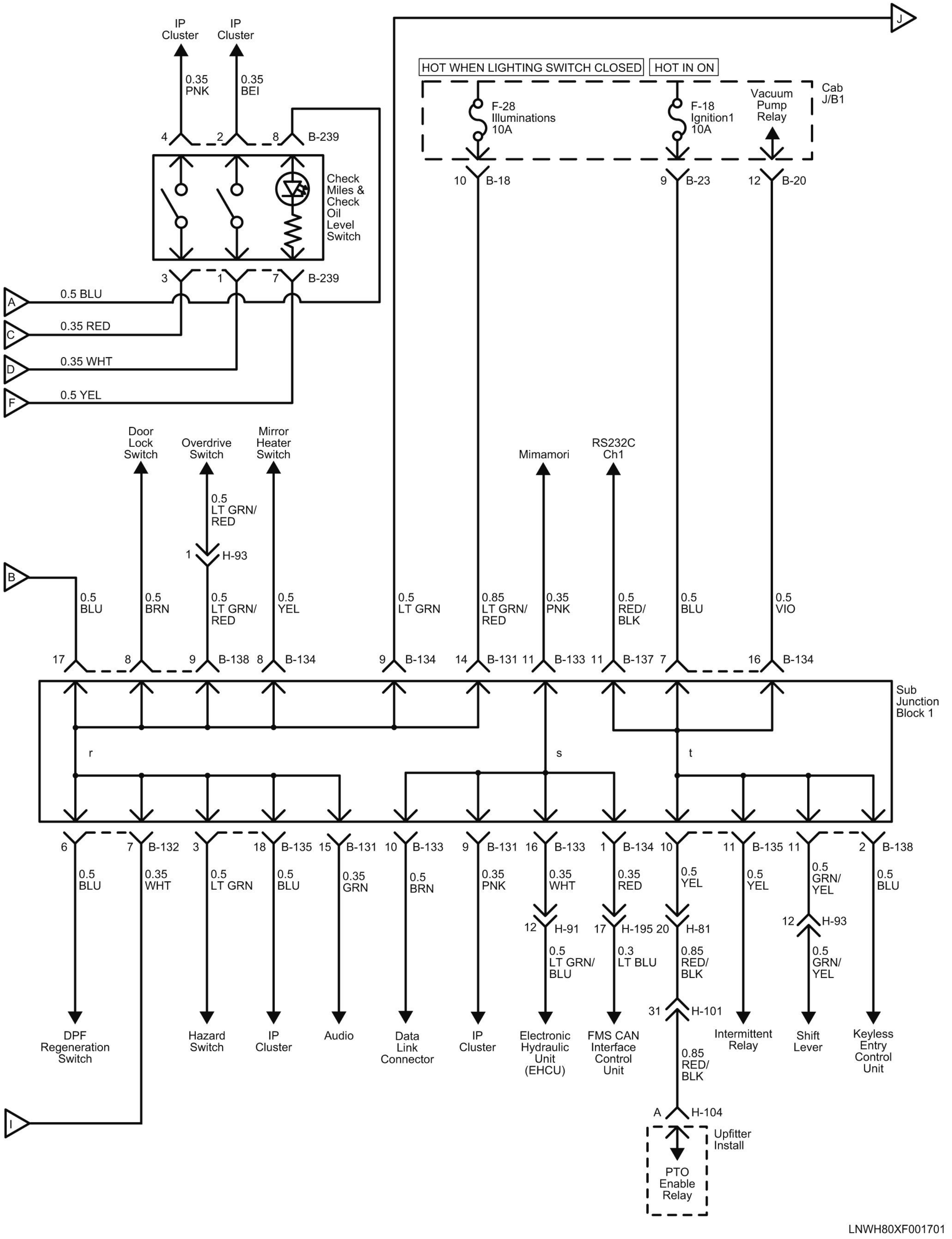

HOT AT ALL TIMES
Cab J/B1
TCM Relay
F-22 ECU (Batt) 10A
2 B-232
3 B-22
Front Turn Light RH
Front Door Lock Motor LH
Door Lock Relay
DRL Control Unit
0.5 GRN/BLK
0.5 BLK/BLU
9 H-91
0.5 LT GRN
1 H-92
0.5 BLU
0.5 BLK/WHT
7 H-91
0.5 LT GRN
0.85 BLK/BLU
C
D
0.5 LT BLU
0.5 LT BLU
0.35 RED
0.35 WHT
10
14
4 B-134
5 B-138
6 B-133
17 B-135
16 B-131
10 B-136
Sub Junction Block 1
f
g
i
h
11 B-131
11 B-132
16 B-136
8 B-135
16 B-132
8 B-132
9 B-135
8 B-133
2
9 B-133
0.5 VIO
0.5 BLU/WHT
0.5 GRN/WHT
3 H-81
13 H-84
0.5 GRN/WHT
0.5 BLU/WHT
1 B-443
2 H-32
2 H-101
0.5 LT GRN
0.5 VIO
0.5 GRN/WHT
Diode Door Lock
0.5 BRN
0.5 BRN
0.5 LT BLU
0.5 VIO
0.5 BLK/BLU
8 H-66
2 B-443
0.5 BRN
4
B-518 J/C 10P ADD2
7
0.5 GRN/WHT
0.5 GRN/WHT
0.5 BRN
Flasher Unit
Side Turn Light RH
IP Cluster
Rear Combination Light RH
Keyless Entry C/U
IP Cluster
IP Cluster
Mimamori
Transmission Control Module
RS232C Ch1
LNWH80XF001101

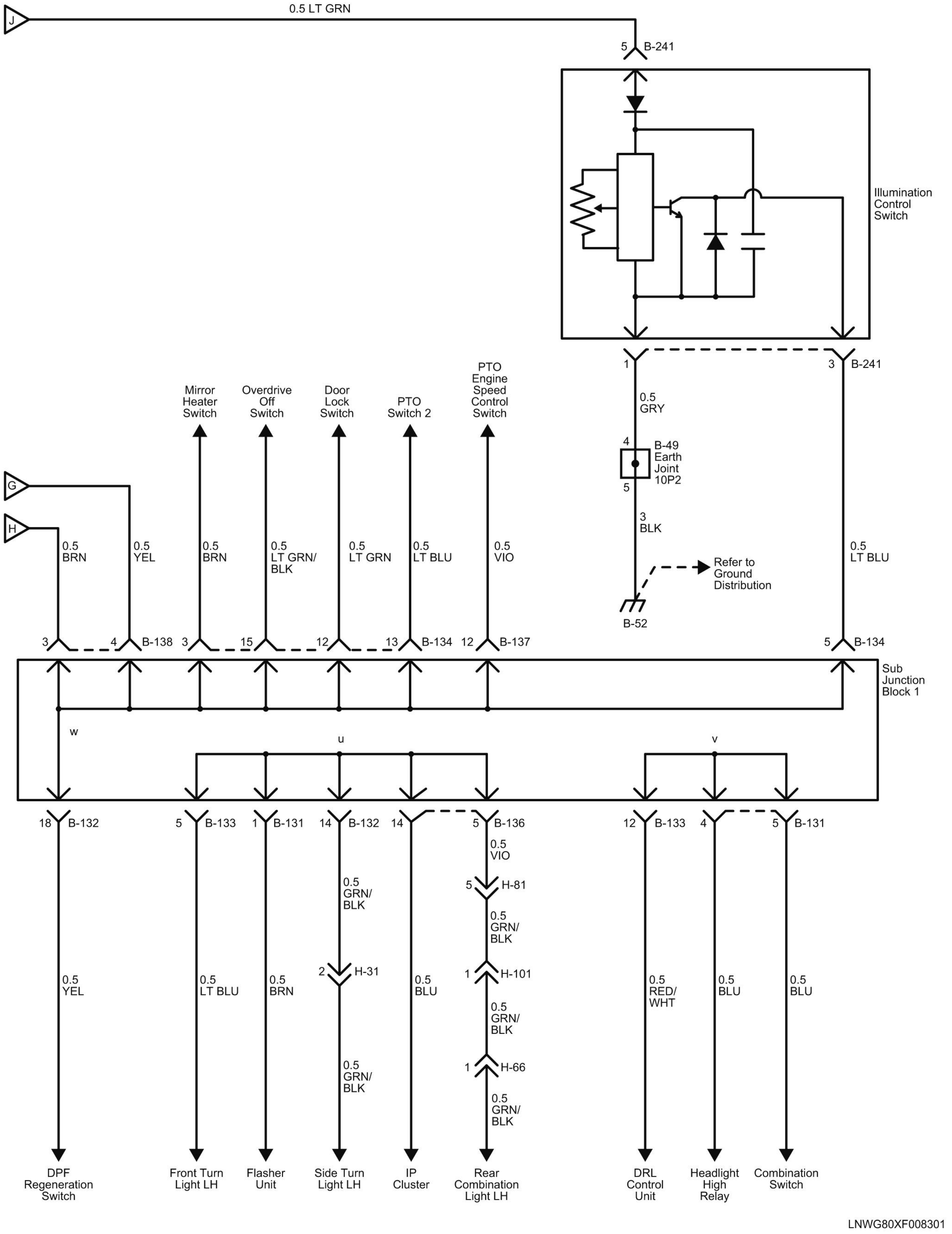

DRL Control Unit
Transmission Control Module
Data Link Connector
Electronic Hydraulic Control Unit (EHCU)
0.5 BLK/ WHT
0.5 WHT/ BLU
0.35 BEI
0.5 LT GRN
1 H-91
0.35 WHT
0.5 VIO
E
16
1
2
4 B-137
4 B-133
Sub Junction Block 1
k
l
j
10 B-131
10 B-132
13 B-136
13 B-131
4 B-132
0.5 LT BLU
12 H-80
0.5 WHT/ BLU
0.85 WHT/ BLU
16 H-52
0.5 WHT/ BLU
0.5 LT GRN
0.35 RED
0.5 LT GRN
0.5 BRN
Generator
IP Cluster
IP Cluster
DPF Regeneration Switch
Wiper & Exhaust Brake Switch

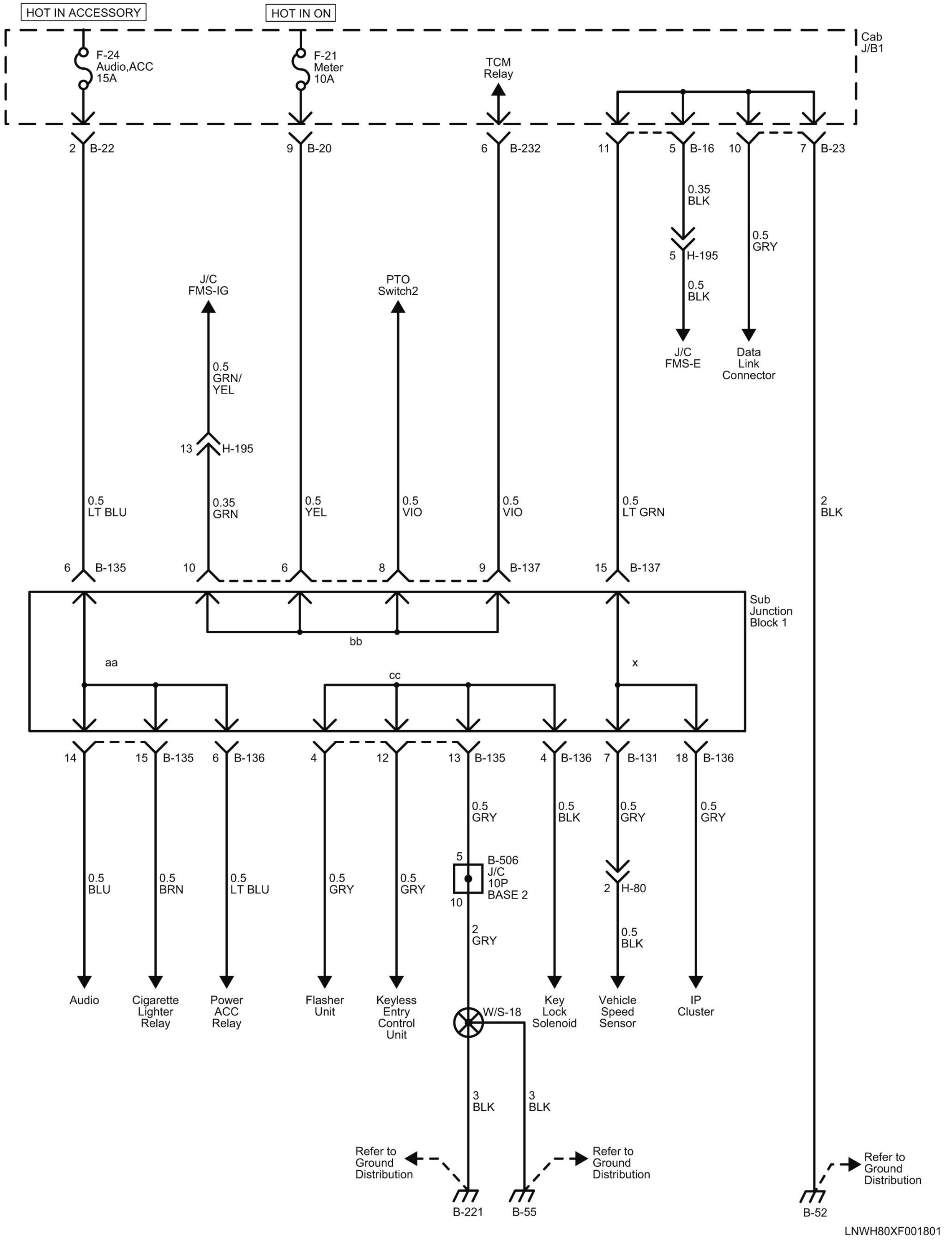
LNWG80XF008001


HOT IN ON
Cab J/B1
F-20 ECM 10A
1 B-18
HOT AT ALL TIMES
Relay Box
F-32 Tail Main 20A
Engine Control Module
J/C 10P ADD 4
Pressure Switch
0.5 YEL
2 B-45
Diode7
3 1 B-45
0.5 BLU
Vacuum Pump Relay
1.25 GRN/BLK
1.25 GRN/BLK
5 6 H-89
1.25 BLU
1.25 LT BLU
E
0.5 VIO
0.5 VIO
0.5 VIO
0.5 YEL
0.5 RED/WHT
F
G
H
0.5 YEL
0.5 YEL
0.5 BRN
13 B-133 7
16 B-135
6
15 B-138
1 B-133
18 B-138
1 B-135 7
16 B-138
Sub Junction Block 1
p
n
o
q
m
18 B-131
9 B-132
7 B-136
15 B-136
2 B-131
17
8
9 B-136
3
12 B-131
0.5 VIO
0.5 VIO
0.5 VIO
0.5 LT BLU
0.5 LT GRN
0.5 GRN/BLK
0.35 BEI
0.5 LT GRN
0.5 YEL
0.3 LT BLU
0.3 YEL
Combination Switch
Stop Light Switch
9 H-80
0.5 GRY/BLU
IP Cluster
Tail Relay
Fan Control Switch
IP Cluster
Hazard Switch
Audio
Engine Control Module
4
7 B-224
Cruise Main Switch
3
8 B-224
0.35 WHT
I

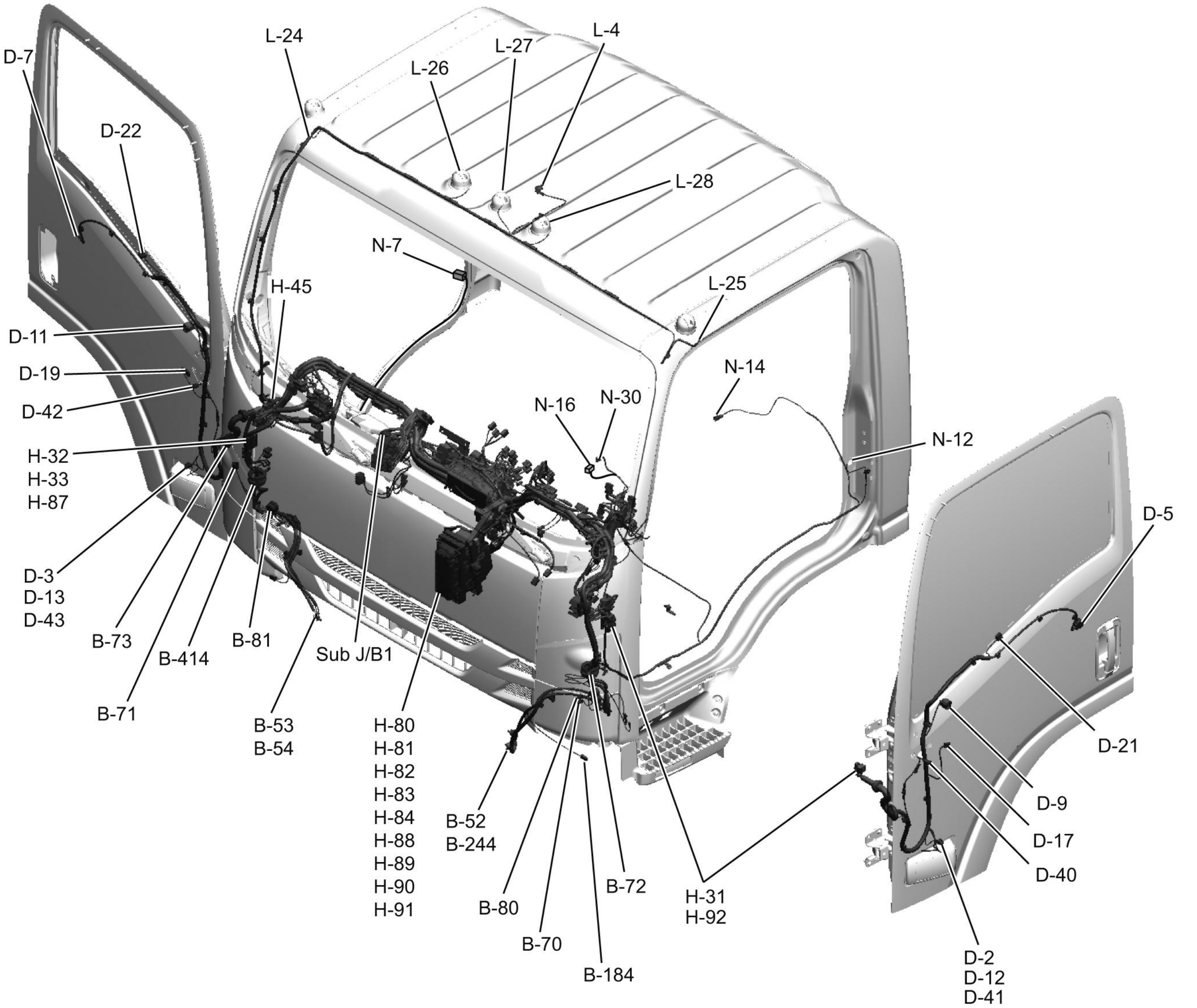
LNWG80XF008101


IP Cluster
IP Cluster
0.35 PNK
0.35 BEI
4
2
8
B-239
Check Miles & Check Oil Level Switch
3
1
7
B-239
A
0.5 BLU
C
0.35 RED
D
0.35 WHT
F
0.5 YEL
J
HOT WHEN LIGHTING SWITCH CLOSED
HOT IN ON
F-28 Illuminations 10A
F-18 Ignition1 10A
Vacuum Pump Relay
Cab J/B1
10
B-18
9
B-23
12
B-20
Door Lock Switch
Overdrive Switch
Mirror Heater Switch
Mimamori
RS232C Ch1
0.5 LT GRN/ RED
1
H-93
B
0.5 BLU
0.5 BRN
0.5 LT GRN/ RED
0.5 YEL
0.5 LT GRN
0.85 LT GRN/ RED
0.35 PNK
0.5 RED/ BLK
0.5 BLU
0.5 VIO
17
8
9
B-138
8
B-134
9
B-134
14
B-131
11
B-133
11
B-137
7
16
B-134
Sub Junction Block 1
r
s
t
6
7
B-132
3
18
B-135
15
B-131
10
B-133
9
B-131
16
B-133
1
B-134
10
11
B-135
11
2
B-138
0.5 BLU
0.35 WHT
0.5 LT GRN
0.5 BLU
0.35 GRN
0.5 BRN
0.35 PNK
0.35 WHT
0.35 RED
0.5 YEL
0.5 YEL
0.5 GRN/ YEL
0.5 BLU
12
H-91
17
H-195
20
H-81
12
H-93
0.5 LT GRN/ BLU
0.3 LT BLU
0.85 RED/ BLK
0.5 GRN/ YEL
31
H-101
0.85 RED/ BLK
A
H-104
Upfitter Install
PTO Enable Relay
DPF Regeneration Switch
Hazard Switch
IP Cluster
Audio
Data Link Connector
IP Cluster
Electronic Hydraulic Unit (EHCU)
FMS CAN Interface Control Unit
Intermittent Relay
Shift Lever
Keyless Entry Control Unit
I
LNWH80XF001701


J
0.5 LT GRN
5 B-241
Illumination Control Switch
1
3 B-241
0.5 GRY
4
B-49 Earth Joint 10P2
5
3 BLK
Refer to Ground Distribution
B-52
0.5 LT BLU
Mirror Heater Switch
Overdrive Off Switch
Door Lock Switch
PTO Switch 2
PTO Engine Speed Control Switch
G
H
0.5 BRN
0.5 YEL
0.5 BRN
0.5 LT GRN/ BLK
0.5 LT GRN
0.5 LT BLU
0.5 VIO
3
4 B-138
3
15
12
13 B-134
12 B-137
5 B-134
Sub Junction Block 1
w
u
v
18 B-132
5 B-133
1 B-131
14 B-132
14
5 B-136
12 B-133
4
5 B-131
0.5 VIO
5 H-81
0.5 GRN/ BLK
2 H-31
1 H-101
1 H-66
0.5 YEL
0.5 LT BLU
0.5 BRN
0.5 GRN/ BLK
0.5 BLU
0.5 RED/ WHT
0.5 BLU
0.5 BLU
DPF Regeneration Switch
Front Turn Light LH
Flasher Unit
Side Turn Light LH
IP Cluster
Rear Combination Light LH
DRL Control Unit
Headlight High Relay
Combination Switch
LNWG80XF008301

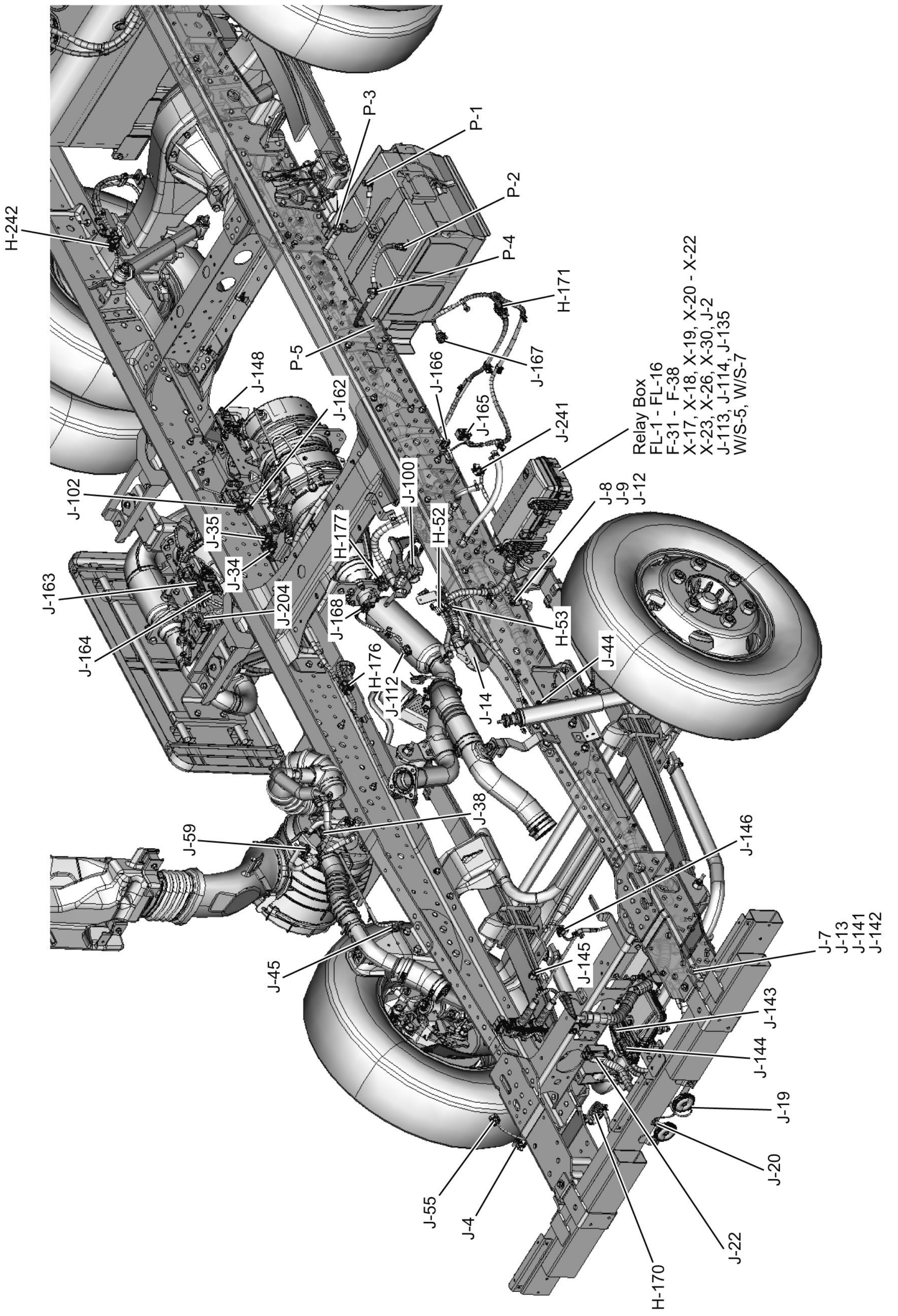

HOT IN ACCESSORY
HOT IN ON
F-24
Audio,ACC
15A
F-21
Meter
10A
TCM
Relay
Cab
J/B1
2
B-22
9
B-20
6
B-232
11
5
B-16
10
7
B-23
0.35
BLK
5
H-195
0.5
BLK
J/C
FMS-E
0.5
GRY
Data
Link
Connector
J/C
FMS-IG
0.5
GRN/
YEL
13
H-195
0.35
GRN
PTO
Switch2
0.5
LT BLU
0.5
YEL
0.5
VIO
0.5
VIO
0.5
LT GRN
2
BLK
6
B-135
10
6
8
9
B-137
15
B-137
Sub
Junction
Block 1
bb
aa
cc
x
14
15
B-135
6
B-136
4
12
13
B-135
4
B-136
7
B-131
18
B-136
0.5
BLU
0.5
BRN
0.5
LT BLU
0.5
GRY
0.5
GRY
0.5
GRY
5
B-506
J/C
10P
BASE 2
10
2
GRY
0.5
BLK
0.5
GRY
2
H-80
0.5
BLK
0.5
GRY
Audio
Cigarette
Lighter
Relay
Power
ACC
Relay
Flasher
Unit
Keyless
Entry
Control
Unit
Key
Lock
Solenoid
Vehicle
Speed
Sensor
IP
Cluster
W/S-18
3
BLK
3
BLK
Refer to
Ground
Distribution
Refer to
Ground
Distribution
Refer to
Ground
Distribution
B-221
B-55
B-52
LNWH80XF001801

Cab Harness Routing


D-7
L-24
L-26
L-27
L-4
D-22
L-28
N-7
H-45
L-25
D-11
D-19
N-14
D-42
N-16
N-30
N-12
H-32
H-33
H-87
D-5
D-3
D-13
D-43
B-73
B-414
B-81
Sub J/B1
B-71
D-21
B-53
B-54
H-80
H-81
H-82
H-83
H-84
H-88
H-89
H-90
H-91
D-9
B-52
B-244
D-17
D-40
B-72
H-31
H-92
B-80
B-70
B-184
D-2
D-12
D-41

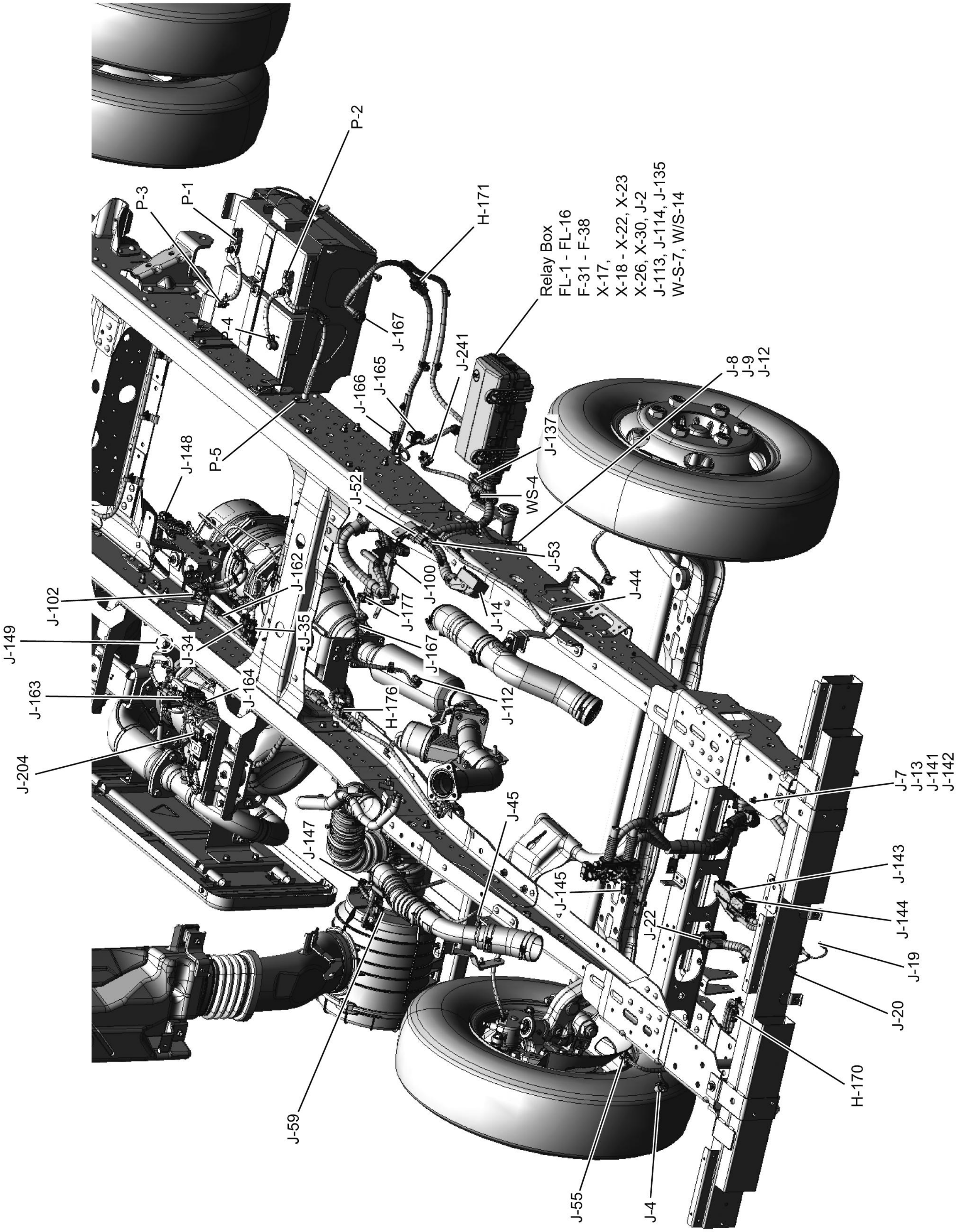
LNWH80XF002501

Frame Harness Routing


H-242
P-3
P-1
P-2
P-4
H-171
P-5
J-167
J-148
J-166
J-162
J-165
J-241
Relay Box
FL-1 - FL-16
F-31 - F-38
X-17, X-18, X-19, X-20 - X-22
X-23, X-26, X-30, J-2
J-113, J-114, J-135
W/S-5, W/S-7
J-100
J-102
J-35
H-177
H-52
J-8
J-9
J-12
J-163
J-34
J-204
J-168
H-53
J-164
H-176
J-112
J-44
J-14
J-38
J-59
J-146
J-7
J-13
J-141
J-142
J-45
J-145
J-143
J-144
J-19
J-20
J-55
J-4
J-22
H-170

LNWH80XF005701

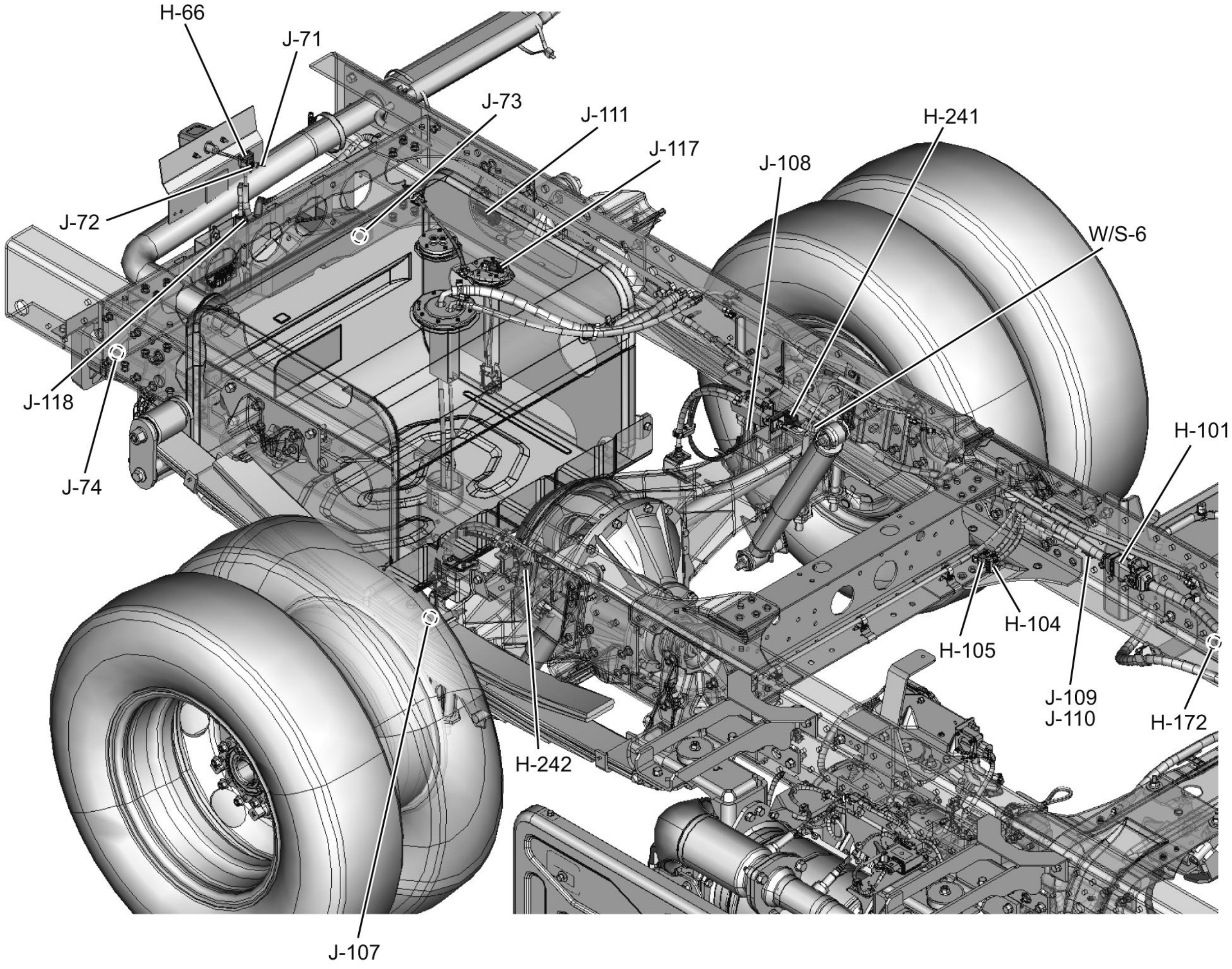
Frame Harness Routing (2 of 2)



P-2
P-3
P-1
H-171
Relay Box
FL-1 - FL-16
F-31 - F-38
X-17,
X-18 - X-22, X-23
X-26, X-30, J-2
J-113, J-114, J-135
W-S-7, W/S-14
P-4
J-167
J-241
J-165
J-166
J-8
J-9
J-12
J-137
J-148
P-5
J-52
WS-4
J-53
J-102
J-162
J-100
J-44
J-177
J-14
J-149
J-34
J-35
J-167
J-163
J-164
H-176
J-112
J-204
J-7
J-13
J-141
J-142
J-45
J-147
J-143
J-145
J-144
J-22
J-19
J-20
H-170
J-59
J-55
J-4

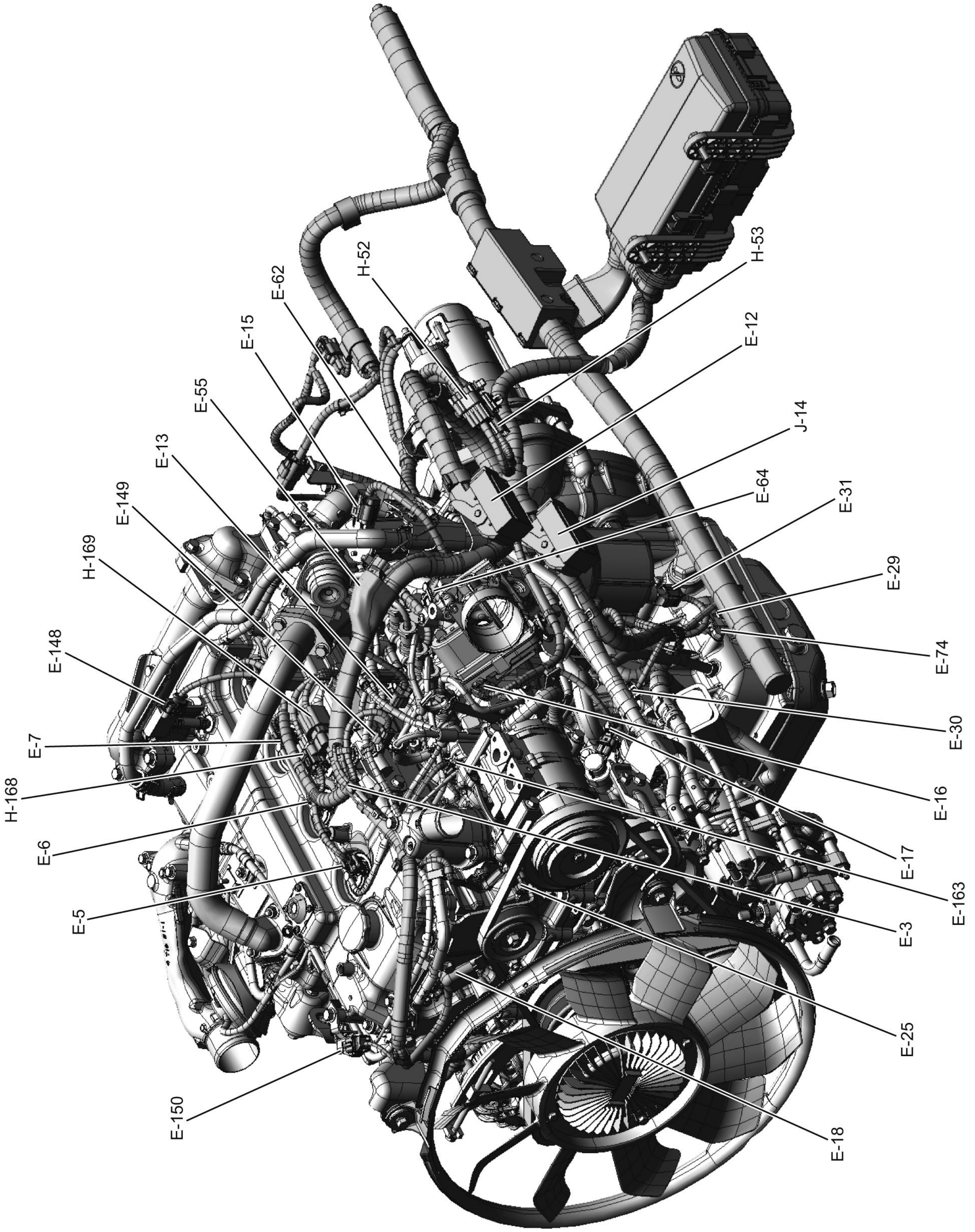
LNWG80XF009901

Frame Harness Routing (3 of 3)

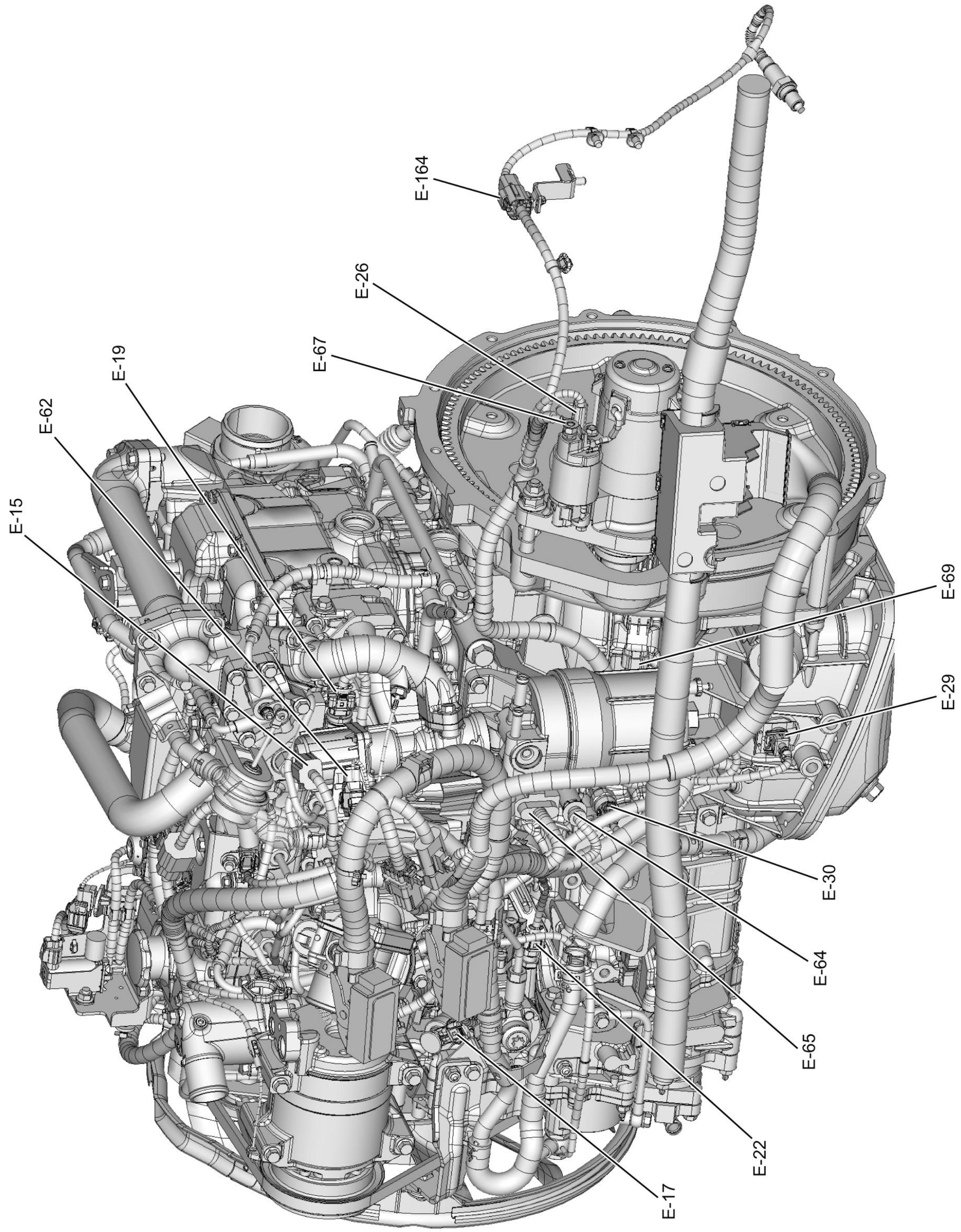

H-66
J-71
J-73
J-111
J-117
J-108
H-241
W/S-6
J-72
J-118
J-74
H-101
H-104
H-105
J-109
J-110
H-172
H-242
J-107

LNWH80XF005501

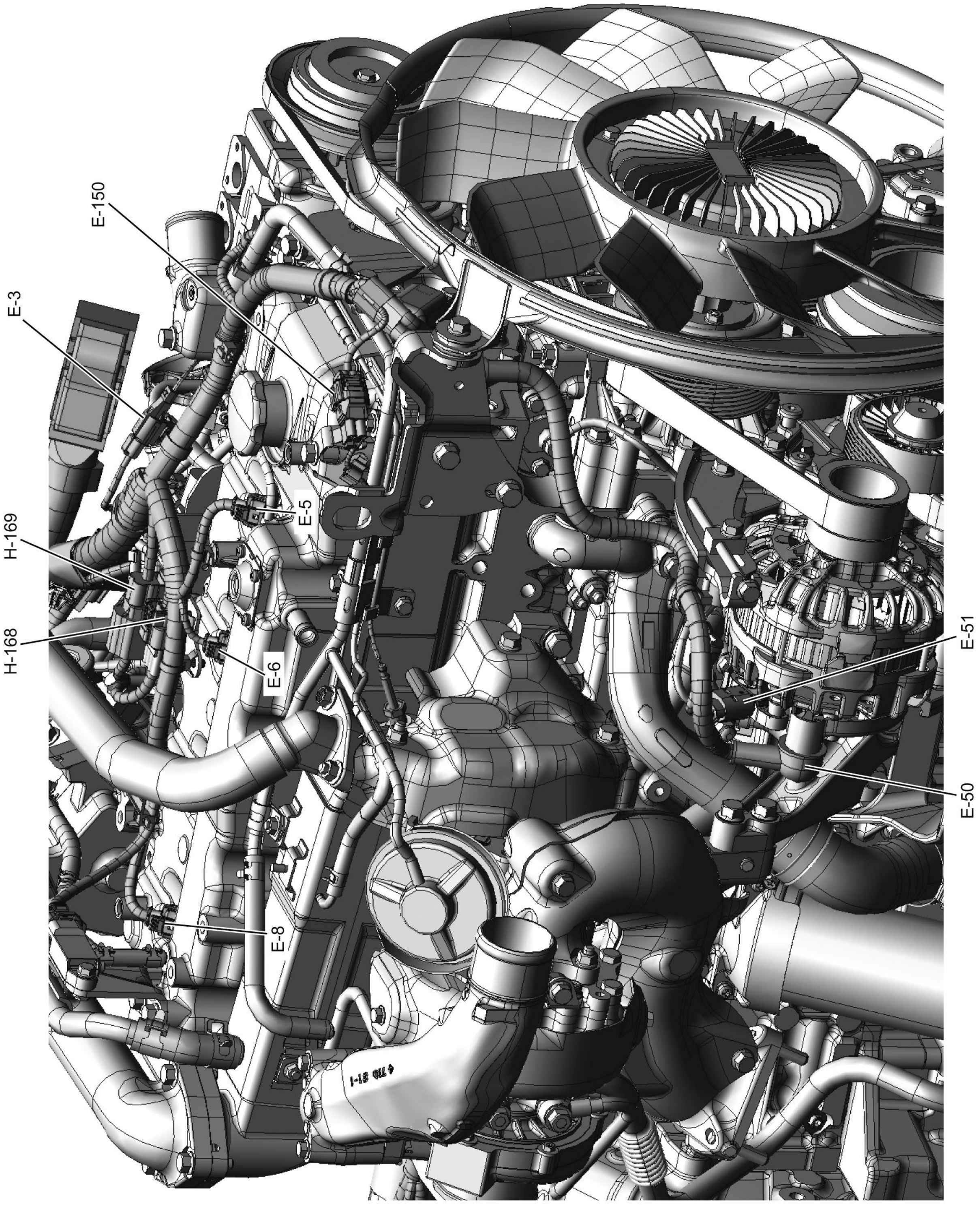
Engine Harness Routing (1 of 4)


H-169
E-148
E-7
H-168
E-6
E-5
E-150
E-149
E-13
E-55
E-15
E-62
H-52
H-53
E-12
J-14
E-64
E-31
E-29
E-74
E-30
E-16
E-17
E-163
E-3
E-25
E-18
LNWF80XF007701

Engine Harness Routing (2 of 4)

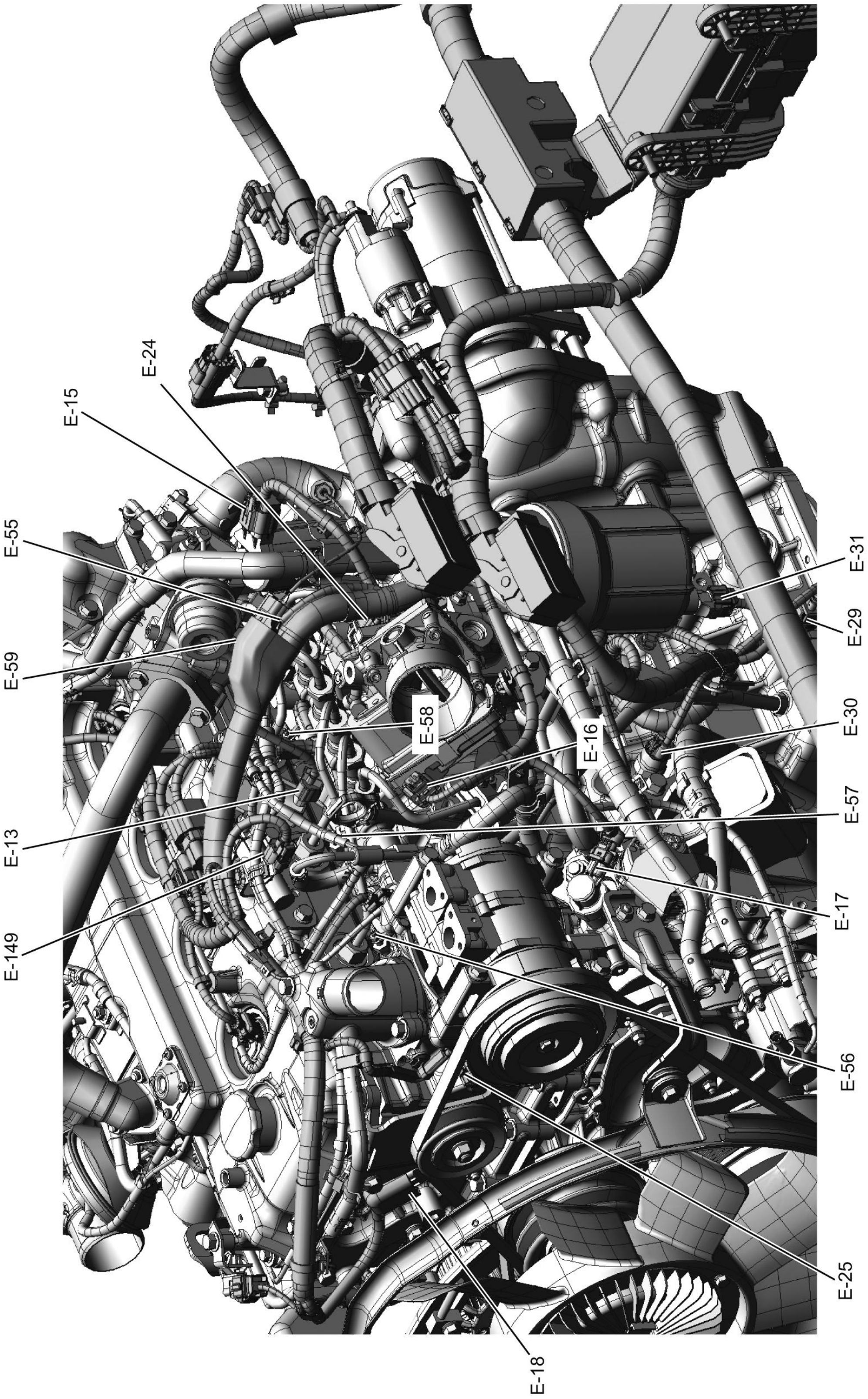

E-164
E-26
E-67
E-19
E-62
E-15
E-69
E-29
E-30
E-64
E-65
E-22
E-17

LNWG80XF019601

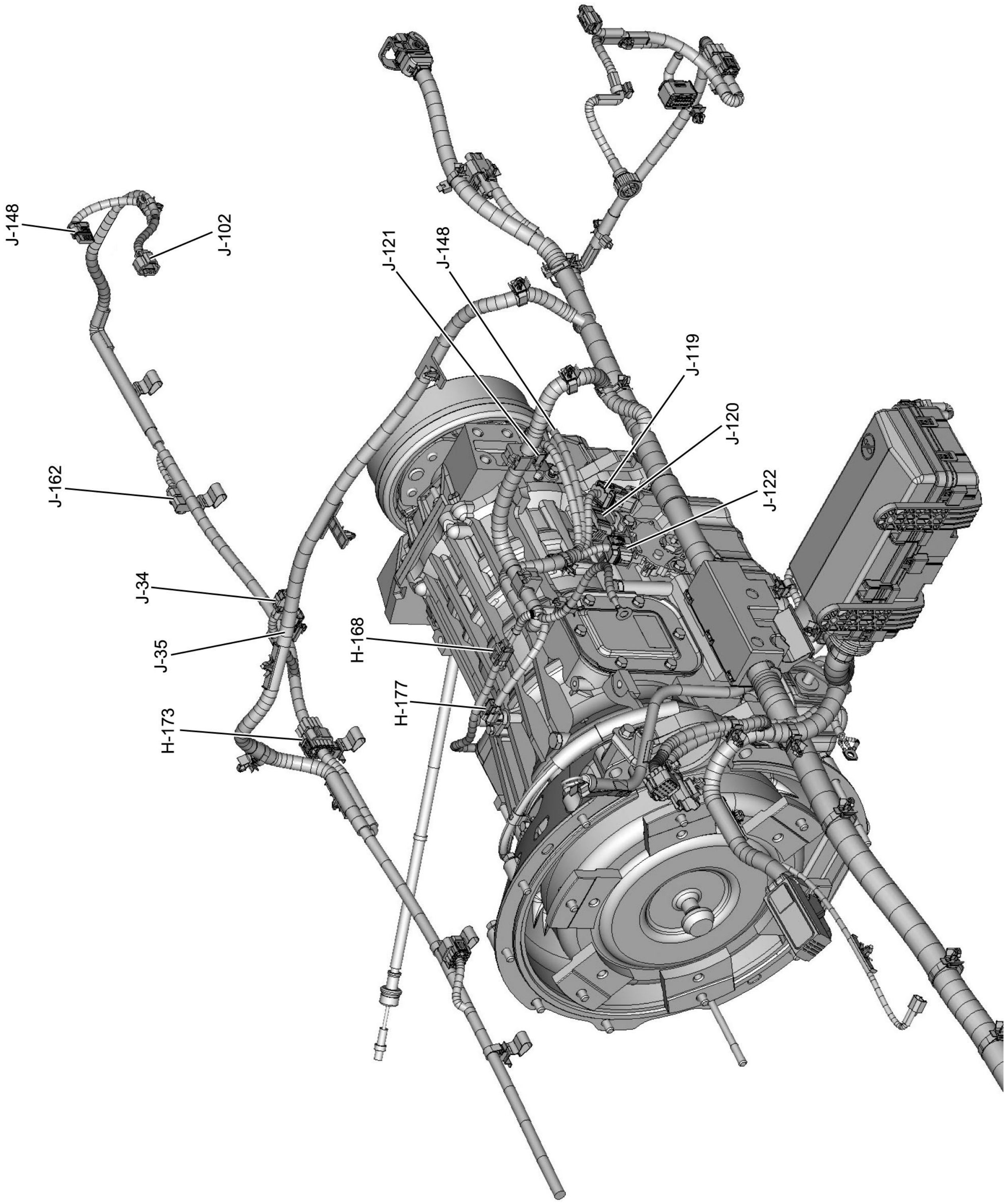

E-150
E-3
E-5
H-169
H-168
E-6
E-8
E-51
E-50
4 ⅡO 21-1

LNWF80XF007801

Engine Harness Routing (4 of 4)

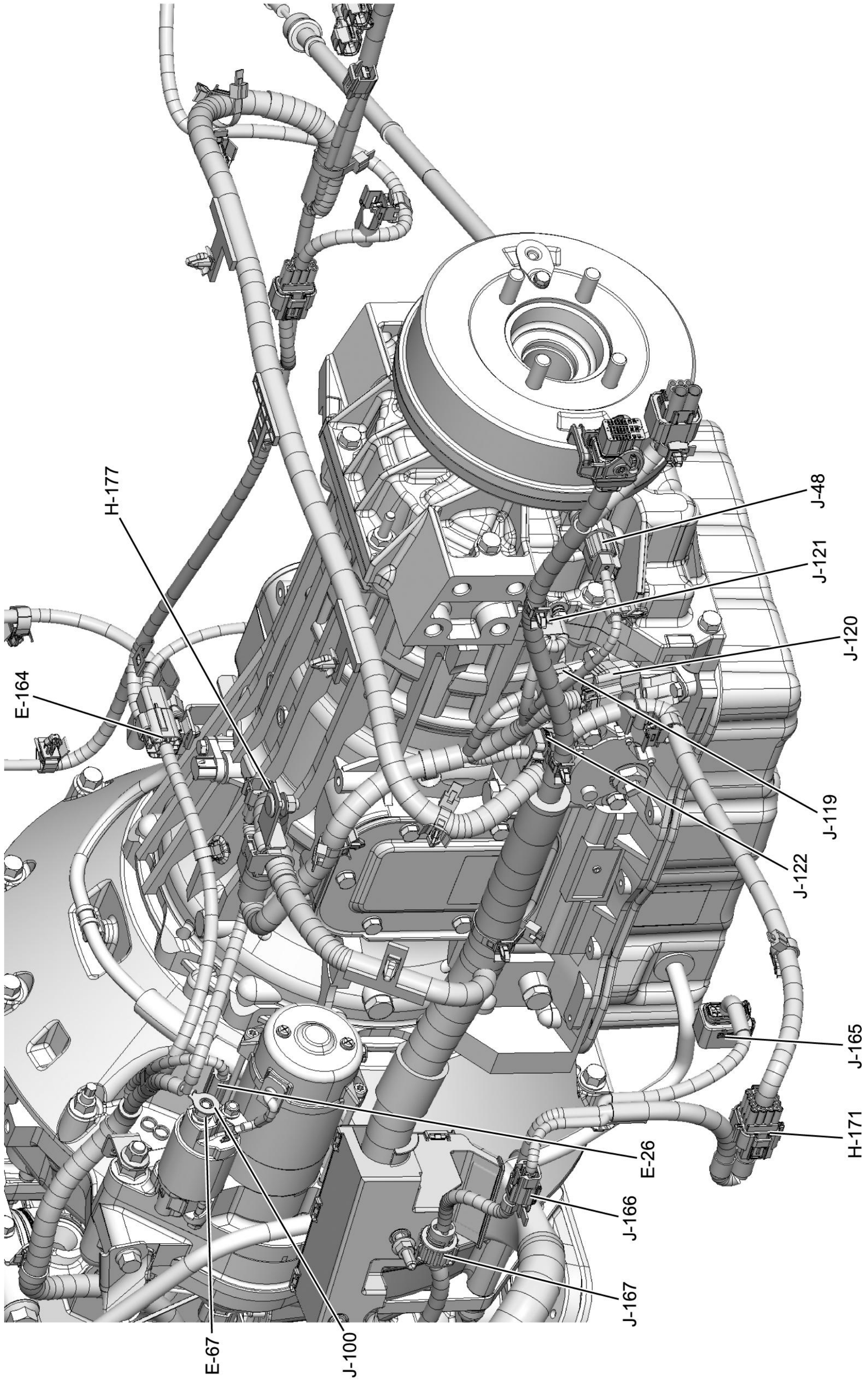

E-24
E-15
E-55
E-59
E-13
E-149
E-58
E-16
E-31
E-29
E-30
E-57
E-17
E-56
E-25
E-18

LNWF80XF007901

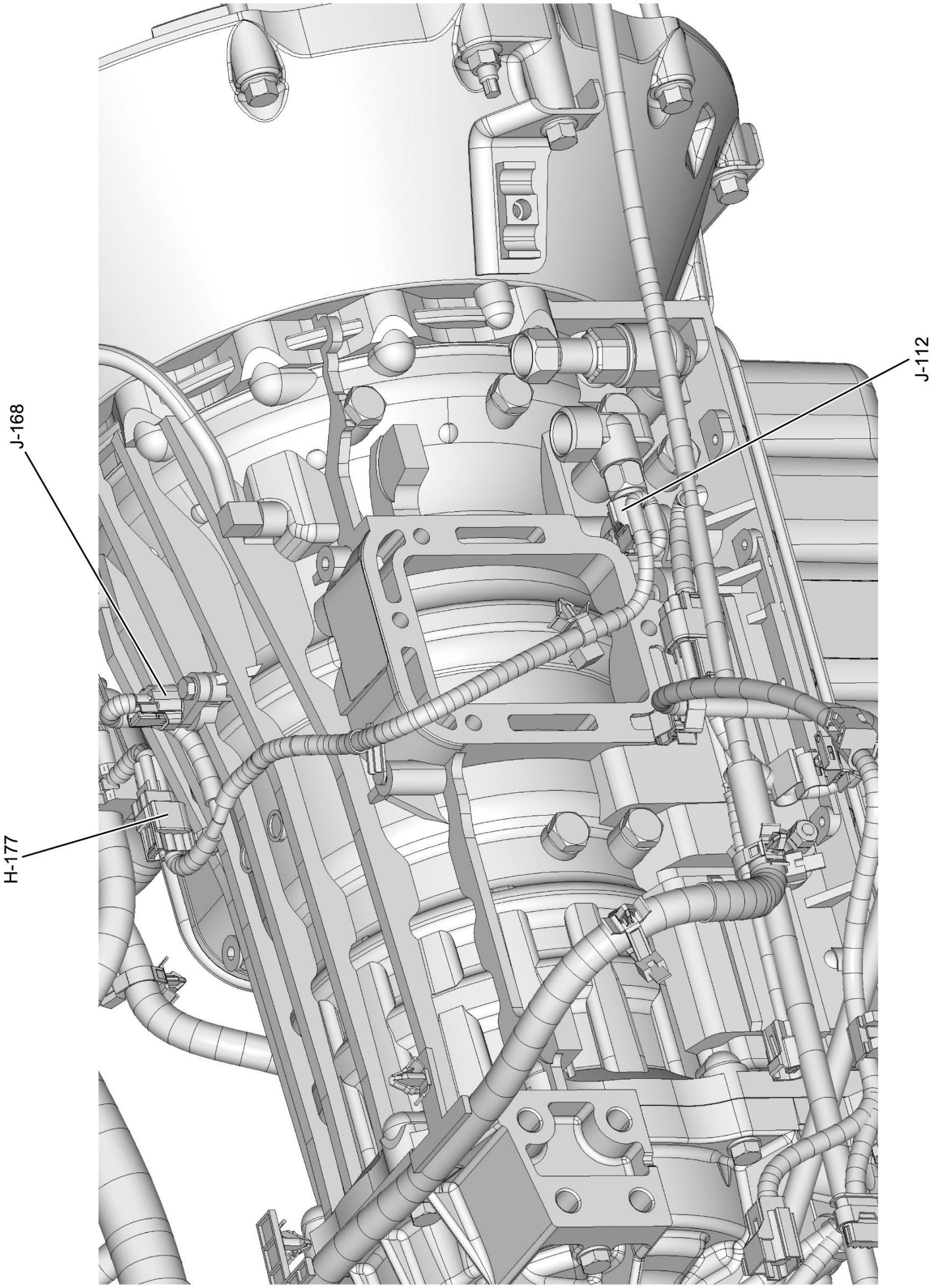

J-148
J-102
J-121
J-148
J-119
J-120
J-122
J-162
J-34
J-35
H-168
H-177
H-173

LNWA8DXF003101

Transmission Harness Routing (2 of 3)

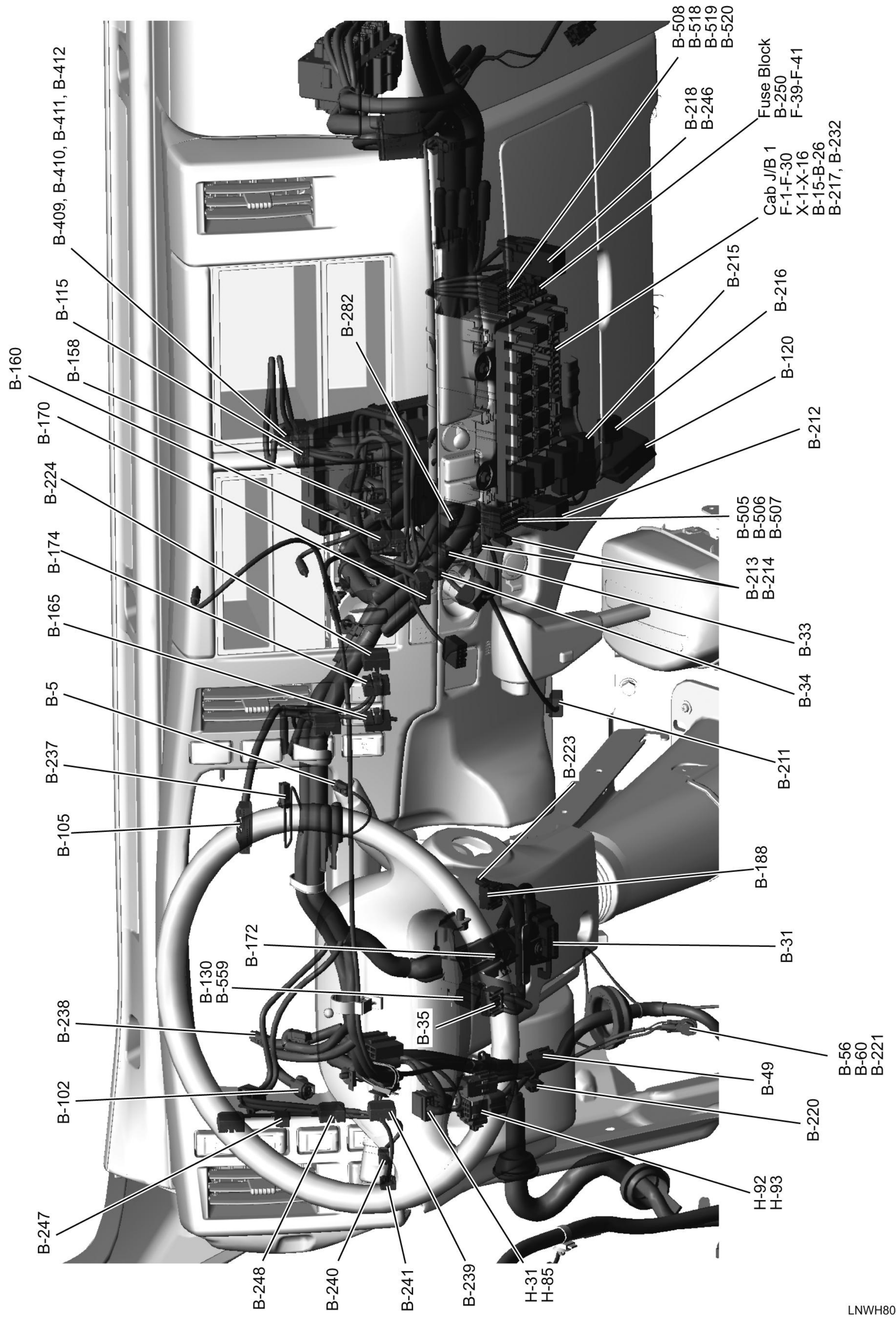

H-177
E-164
J-48
J-121
J-120
J-119
J-122
J-165
H-171
E-26
J-166
J-167
E-67
J-100

LNWA8DXF000301



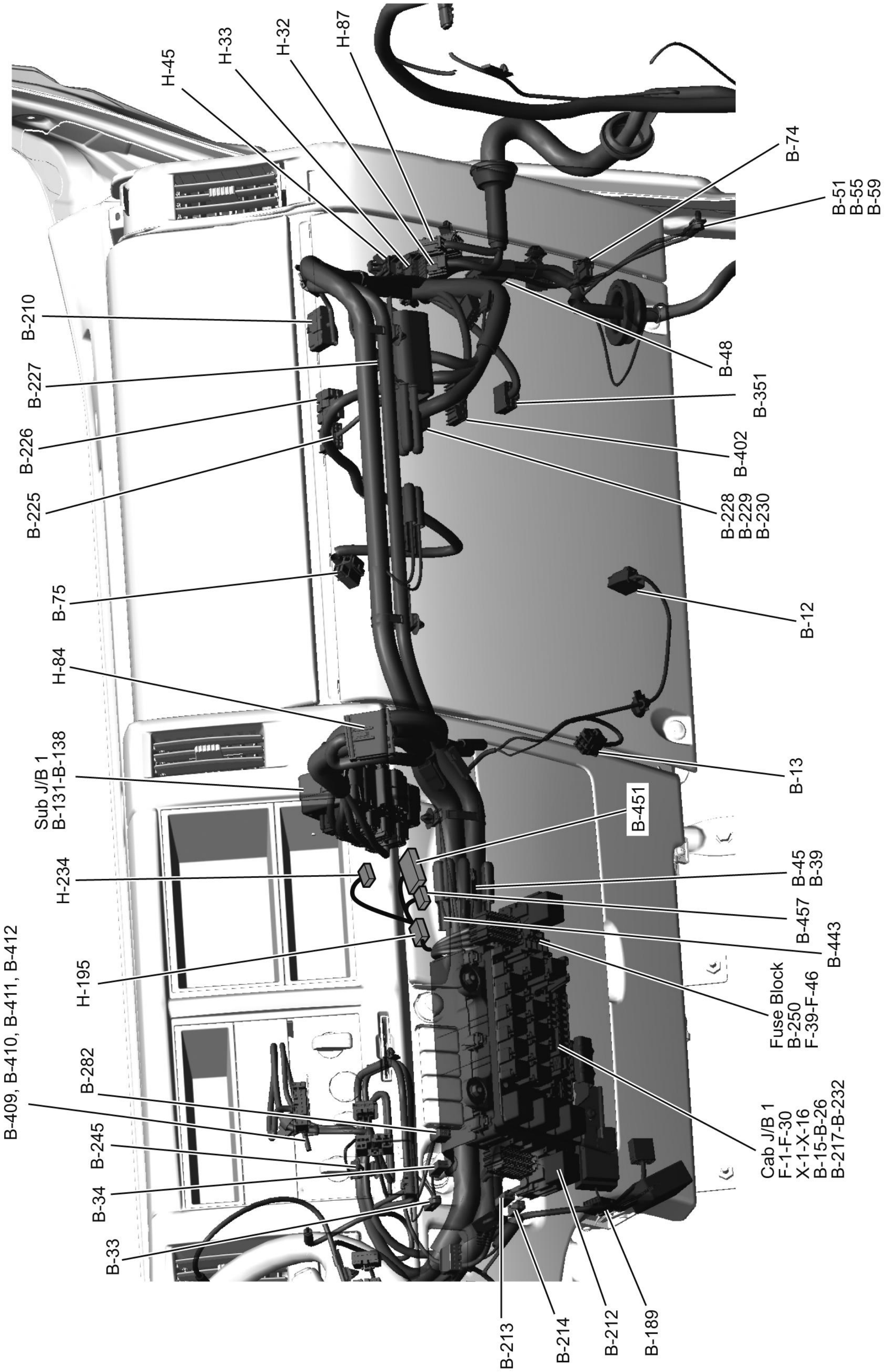
LNWA8DXF006001

Instrument Panel Harness Routing (1 of 2)


B-508
B-518
B-519
B-520
B-218
B-246
Fuse Block
B-250
F-39-F-41
Cab J/B 1
F-1-F-30
X-1-X-16
B-15-B-26
B-217, B-232
B-215
B-216
B-120
B-212
B-505
B-506
B-507
B-213
B-214
B-33
B-34
B-211
B-223
B-188
B-31
B-56
B-60
B-221
B-49
B-220
H-92
H-93
B-409, B-410, B-411, B-412
B-115
B-282
B-160
B-158
B-170
B-224
B-174
B-165
B-5
B-237
B-105
B-172
B-130
B-559
B-35
B-238
B-102
B-247
B-248
B-240
B-241
B-239
H-31
H-85

LNWH80XF001501

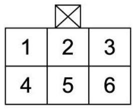
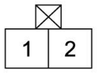
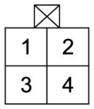
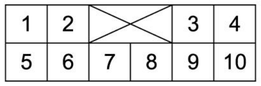
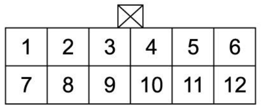
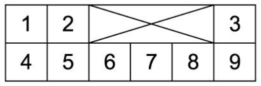
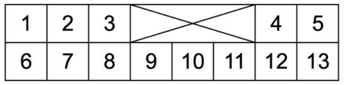
Instrument Panel Harness Routing (2 of 2)

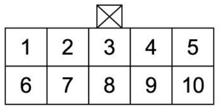
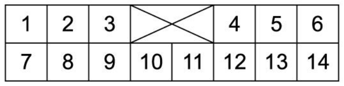
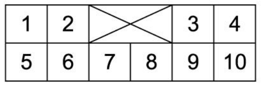
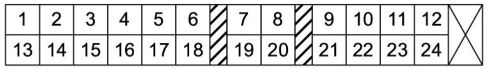
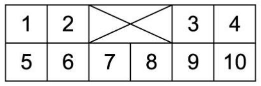
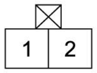
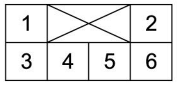
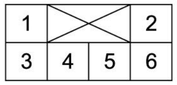

H-45
H-33
H-32
H-87
B-74
B-51
B-55
B-59
B-210
B-227
B-226
B-225
B-48
B-351
B-402
B-228
B-229
B-230
B-75
B-12
H-84
Sub J/B 1
B-131-B-138
B-13
B-451
H-234
B-45
B-39
B-457
B-443
H-195
Fuse Block
B-250
F-39-F-46
B-409, B-410, B-411, B-412
B-282
B-245
B-34
B-33
Cab J/B 1
F-1-F-30
X-1-X-16
B-15-B-26
B-217-B-232
B-213
B-214
B-212
B-189

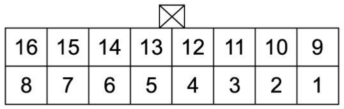
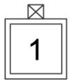
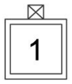
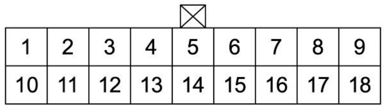
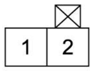
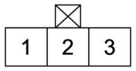
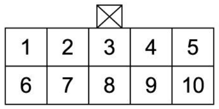
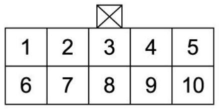
LNWH80XF002601

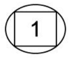
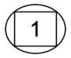
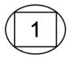
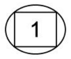
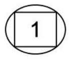
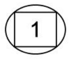
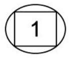
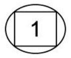
Visual Identification

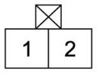
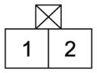
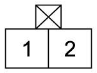
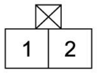
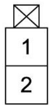
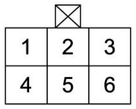
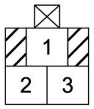
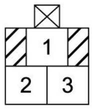
Connector List

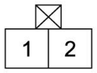
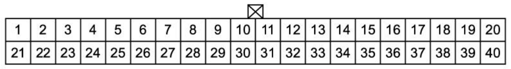
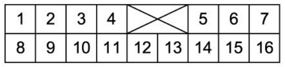
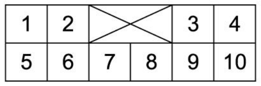
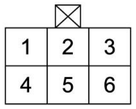
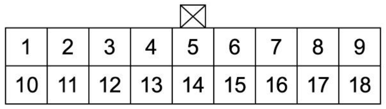
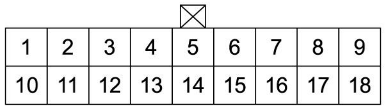
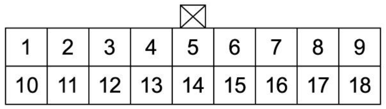
No.	Connector Face
B-5 Gray	 006-115 Accelerator Pedal Position Sensor
B-12 White	 002-267 Blower Motor
B-13 White	 004-129 Blower Resistor
B-15 Blue	 1 2 3 4 5 6 7 8 9 10 010-062 Cab J/B1.A
B-16 White	 1 2 3 4 5 6 7 8 9 10 11 12 012-074 Cab J/B1.B
B-17 White	 009-021 Cab J/B1.D
B-18 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 013-008 Cab J/B1.E

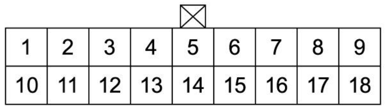
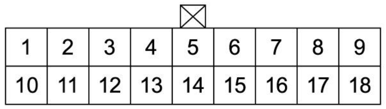
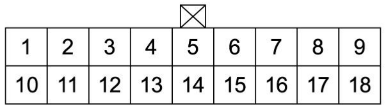
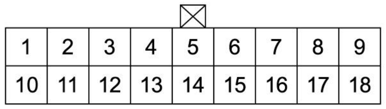
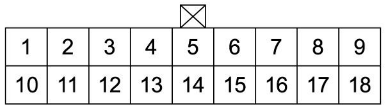
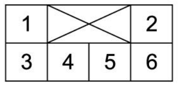
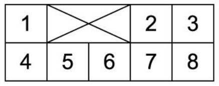
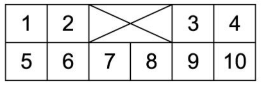
B-19 White	 1 2 3 4 5 6 7 8 9 10 010-061 Cab J/B1.F
B-20 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 014-026 Cab J/B1.G
B-21 White	 1 2 3 4 5 6 7 8 9 10 010-062 Cab J/B1.H
B-22 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 024-025 Cab J/B1.J
B-23 White	 1 2 3 4 5 6 7 8 9 10 010-062 Cab J/B1.K
B-24 White	 002-267 Cab J/B1.L
B-25 White	 006-116 Cab J/B1.N
B-26 White	 006-116 Cab J/B1.P

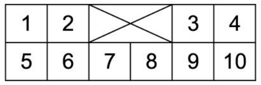
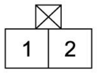
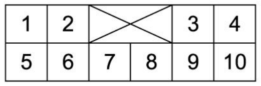
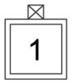
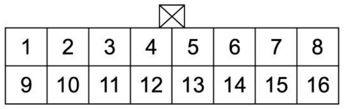
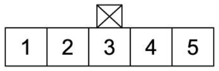
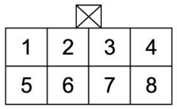
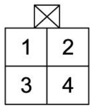
B-31 Gray	 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 016-088 Data Link Connector
B-33 White	 001-039 Cigarette Lighter.A
B-34 Black	 001-039 Cigarette Lighter.B
B-35 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 018-024 Combination Switch
B-39 Black	 002-268 Diode 1
B-45 Orange	 003-150 Diode 7
B-48 White	 1 2 3 4 5 6 7 8 9 10 010-061 Earth Joint 10P1
B-49 White	 1 2 3 4 5 6 7 8 9 10 010-061 Earth Joint 10P2

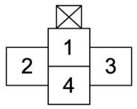
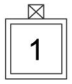
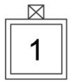
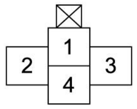
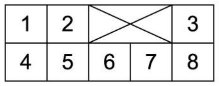
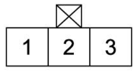
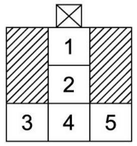
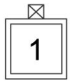
B-51	 000-049 Earth Body 15
B-52	 000-049 Earth Body 17
B-53	 000-049 Earth Body 18
B-54	 000-049 Earth Body 19
B-55	 000-049 Earth Body 22
B-56	 000-049 Earth Body 3
B-59	 000-049 Earth Body 8
B-60	 000-049 Earth Body 9

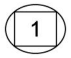
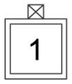
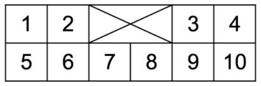
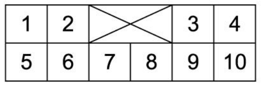
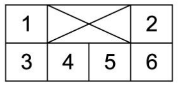
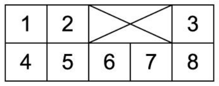
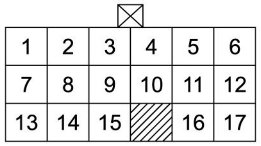
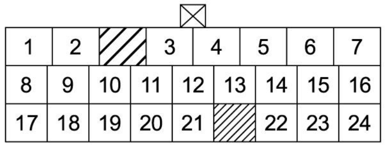
B-70 Gray	 002-267 Front Position Light (LH)
B-71 Gray	 002-267 Front Position Light (RH)
B-72 Gray	 002-267 Front Turn Light (LH)
B-73 Gray	 002-267 Front Turn Light (RH)
B-74 White	 002-272 Front Washer Motor
B-75 White	 006-115 Front Wiper Motor
B-80 Black	 003-151 Headlight (LH)
B-81 Black	 003-151 Headlight (RH)

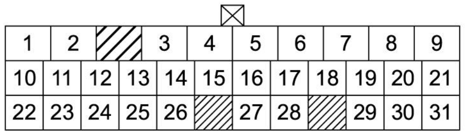
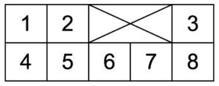
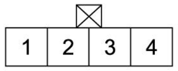
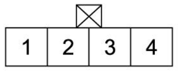
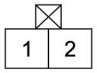
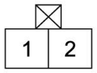
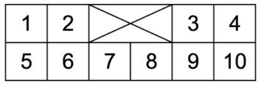
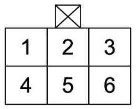
B-102 Gray	 002-267 Brake Fluid Level Switch
B-105 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 040-008 IP Cluster.A
B-115 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 016-094 Audio
B-120 Green	 1 2 3 4 5 6 7 8 9 10 010-062 RS232C Ch1
B-130 White	 006-115 Starter Switch 1
B-131 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 018-024 Sub J/B1.A
B-132 Black	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 018-024 Sub J/B1.B
B-133 Gray	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 018-024 Sub J/B1.C

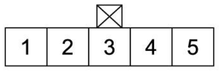
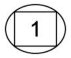
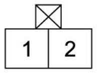
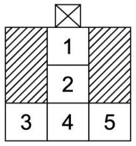
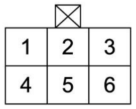
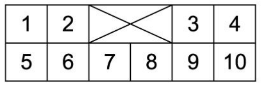
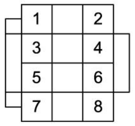
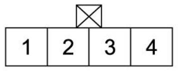
B-134 Blue	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 018-024 Sub J/B1.D
B-135 Red	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 018-024 Sub J/B1.E
B-136 Brown	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 018-024 Sub J/B1.F
B-137 Green	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 018-024 Sub J/B1.G
B138 Orange	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 018-024 Sub J/B1.H
B-158 White	 006-116 A/C Switch
B-160 White	 008-078 Blower Switch
B-165 Blue	 1 2 3 4 5 6 7 8 9 10 010-062 DPF Regeneration Switch

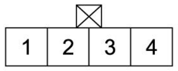
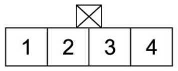
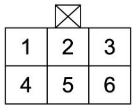
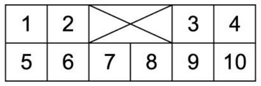
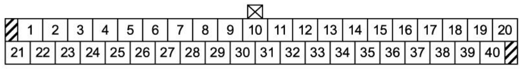
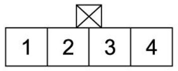
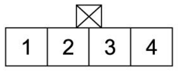
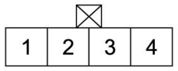
B-170 Black	 1 2 3 4 5 6 7 8 9 10 010-062 Hazard Switch
B-172 White	 002-267 Key Reminder Switch
B-174 Gray	 1 2 3 4 5 6 7 8 9 10 010-062 Mirror Heater Switch
B-184 Black	 001-039 Vacuum Tank Switch
B-188 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 016-084 Wiper and Exhaust Brake SW
B-189 Black	 005-037 Electronic Thermostat
B-210 Black	 008-076 Intermittent Relay
B-211 White	 004-129 Stoplight Switch

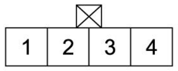
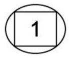
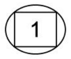
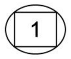
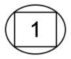
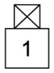
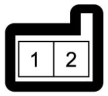
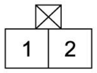
B-212 Black	 004-134 Accessory Power Relay
B-213 White	 001-039 ACC Socket.A
B-214 White	 001-039 ACC Socket.B
B-215 Black	 004-134 Blower Relay
B-216 Blue	 008-077 Flasher Unit
B-217 White	 003-150 Cab J/B1.M
B-218 Black	 005-039 Cigarette Lighter Relay
B-220 White	 001-039 Power Source

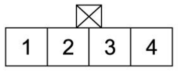
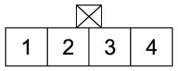
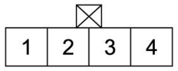
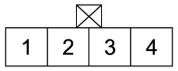
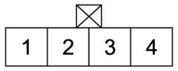
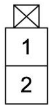
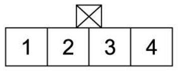
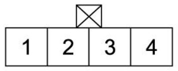
B-221	 000-049 Earth Body 21
B-223 White	 001-039 Horn Switch
B-224 Brown	 1 2 3 4 5 6 7 8 9 10 010-062 Cruise Main Switch
B-225 Black	 1 2 3 4 5 6 7 8 9 10 010-062 DRL Control Unit. A
B-226 Black	 006-116 DRL Control Unit .B
B-227 Gray	 008-077 Door Lock Relay
B-228 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 017-007 TCM (A)
B-229 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 024-027 TCM (B)

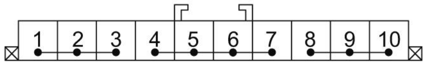
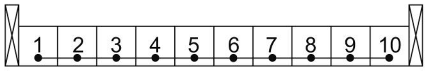
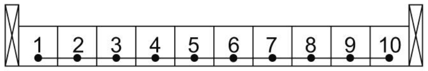
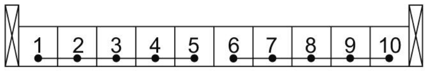
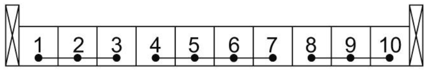
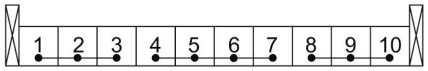
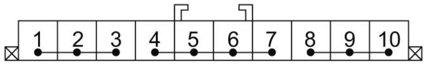
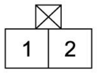
B-230 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 031-008 TCM (C)
B-232 White	 008-077 Cab J/B1.C
B-235 White	 004-128 CAN2 Joint check-L
B-236 White	 004-128 CAN2 Joint check-H
B-237 Black	 002-267 Pressure Switch
B-238 White	 002-267 Vacuum Pump
B-239 Blue	 1 2 3 4 5 6 7 8 9 10 010-062 Check Miles and Check Oil Level Switch
B-240 Blue	 006-115 Door Lock Switch

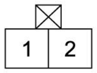
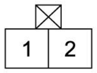
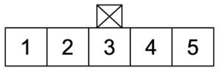
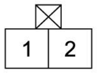
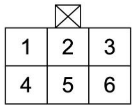
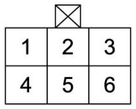
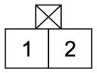
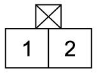
B-241 Black	 005-037 Illumination Control Switch
B-244	 000-049 Earth Body 2
B-245 White	 002-267 Defroster Switch
B-246 Black	 005-039 Cornering Light Relay
B-247 Orange	 006-115 PTO Engine Speed Control Switch
B-248 Green	 1 2 3 4 5 6 7 8 9 10 010-062 PTO Switch 2
B-250	 008-082 Fuse Block 1
B-267 White	 004-128 J/C-100

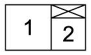
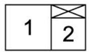
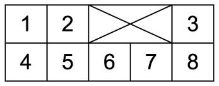
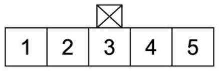
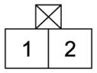
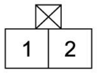
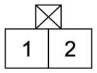
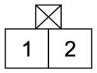
B-268 White	 004-128 J/C-101
B-269 White	 004-128 J/C-50
B-282 White	 006-115 Rear Body Switch
B-351 White	 1 2 3 4 5 6 7 8 9 10 010-062 Keyless Entry Control Unit
B-402 Gray	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 040-009 MIMAMORI C/U
B-403 White	 004-128 J/C-CAN1 MIMAMORI-L
B-404 White	 004-128 J/C-CAN1 MIMAMORI-H
B-405 White	 004-128 J/C-CAN2 MIMAMORI-L

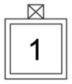
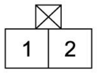
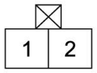
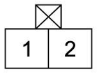
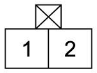
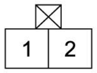
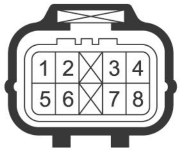
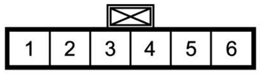
B-406 White	 004-128 J/C-CAN2 MIMAMORI-H
B-409	 000-049 EXT_ETB-1
B-410	 000-049 EXT_ETB-2
B-411	 000-049 EXT_ETB-3
B-412	 000-049 EXT_ETB-4
B-414 Black	 001-084 TR Brake
B-443 Black	 002-043 Diode Door Lock
B-450 White	 002-267 FMS CAN Connector
B-451	The final page of connector list

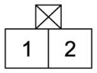
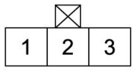
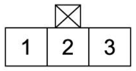
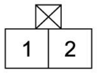
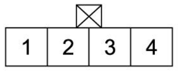
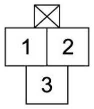
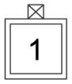
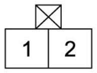
B-452 White	 004-128 J/C FMS-B
B-453 White	 004-128 J/C FMS-E
B-454 White	 004-128 J/C FMS-IG
B-455 White	 004-128 J/C CANOUT-H
B-456 White	 004-128 J/C CANOUT-L
B-457 Blue	 002-272 Terminal FMS
B-458 White	 004-128 CAN1 Joint - FMS-H
B-459 White	 004-128 CAN1 Joint - FMS-L

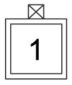
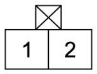
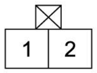
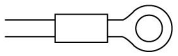
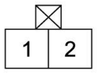
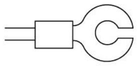
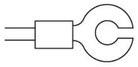
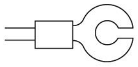
B-505 White	 1 2 3 4 5 6 7 8 9 10 010-070 J/C 10P BASE 1
B-506 Green	 1 2 3 4 5 6 7 8 9 10 010-071 J/C 10P BASE 2
B-507 Green	 1 2 3 4 5 6 7 8 9 10 010-071 J/C 10P BASE 3
B-508 Black	 1 2 3 4 5 6 7 8 9 10 010-072 J/C 10P ADD 1
B-518 White	 1 2 3 4 5 6 7 8 9 10 010-073 J/C 10P ADD 2
B-519 White	 1 2 3 4 5 6 7 8 9 10 010-073 J/C 10P ADD 3
B-520 White	 1 2 3 4 5 6 7 8 9 10 010-070 J/C 10P ADD 4
B-559 White	 002-267 Key Lock Solenoid

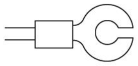
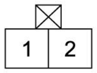
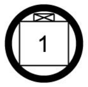
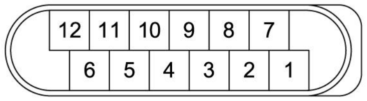
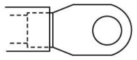
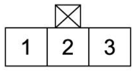
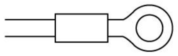
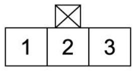
D-2 Gray	 002-267 Front Cornering Light (LH)
D-3 Gray	 002-267 Front Cornering Light (RH)
D-5 Gray	 005-037 Front Door Lock Motor(LH)
D-7 Gray	 002-267 Front Door Lock Motor(RH)
D-9 Green	 006-115 Front Power Window Motor (LH)
D-11 Green	 006-115 Front Power Window Motor (RH)
D-12 Brown	 002-267 Side Turn Light (LH)
D-13 Brown	 002-267 Side Turn Light (RH)

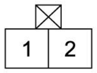
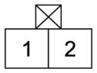
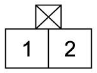
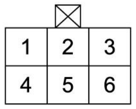
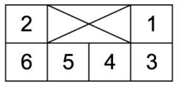
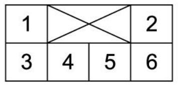
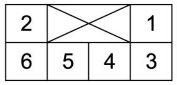
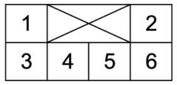
D-17 Black	 002-270 Speaker (LH)
D-19 Black	 002-270 Speaker (RH)
D-21 White	 008-077 Front Power Window Switch (LH)
D-22 Gray	 005-037 Front Power Window Switch (RH)
D-40 Gray	 002-267 Heater Mirror (LH)
D-41 Gray	 002-267 Side Marker (LH)
D-42 Gray	 002-267 Heater Mirror (RH)
D-43 Gray	 002-267 Side Marker (RH)

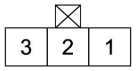
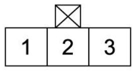
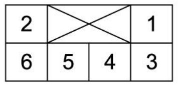
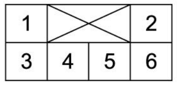
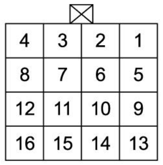
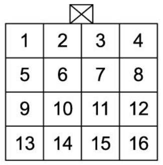
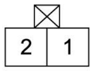
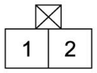
E-3 Black	 001-039 A/C Compressor
E-5 Black	 002-267 Fuel Injector #1 Cylinder
E-6 Black	 002-267 Fuel Injector #2 Cylinder
E-7 Black	 002-267 Fuel Injector #3 Cylinder
E-8 Black	 002-267 Fuel Injector #4 Cylinder
E-12	The final page of connector list
E-13 Brown	 002-267 Turbocharger Nozzle Control Solenoid Valve
E-15 Black	 008-075 EGR Valve
E-16 Black	 006-107 Intake Airflow (IAF) Valve

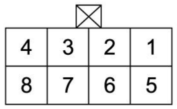
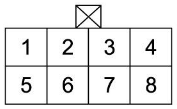
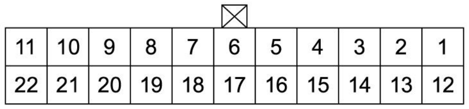
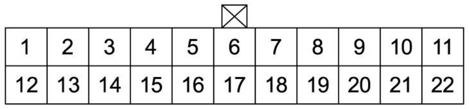
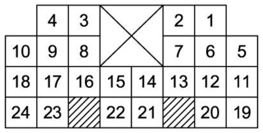
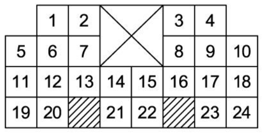
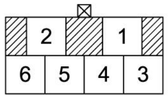
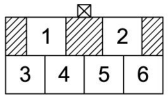
E-17 Black	 002-267 FRP Regulator
E-18 Black	 003-150 Camshaft Position Sensor
E-19 Black	 003-150 Fuel Rail Pressure (FRP) Sensor
E-22 Black	 002-267 Fuel Temp Sensor
E-24 Dark Gray	 004-128 Boost Pressure/ Intake Air Temperature (IAT) Sensor 2
E-25 Dark Gray	 003-152 Engine Coolant Temperature (ECT) Sensor
E-26 White	 001-039 Starter (C)
E-29 Gray	 002-267 Oil Level Switch

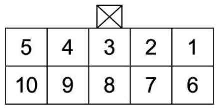
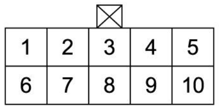
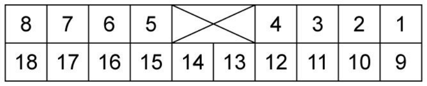
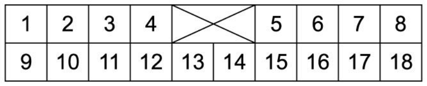
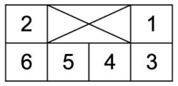
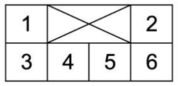
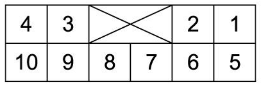
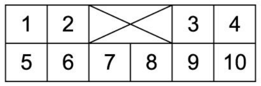
E-30 Gray	 001-039 Engine Oil Pressure Switch
E-31 Dark Gray	 002-267 Fuel Sedimenter Switch
E-50	 002-267 Generator
E-51 Gray	 000-012 Generator (B)
E-55 Black	 002-267 Resistor
E-56	 000-020 Glow Plug #1
E-57	 000-020 Glow Plug #2
E-58	 000-020 Glow Plug #3

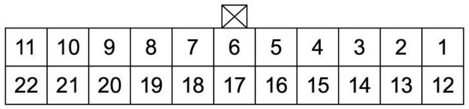
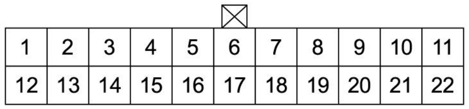
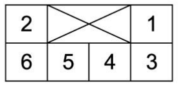
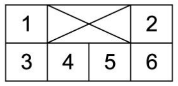
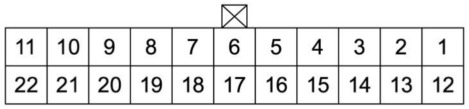
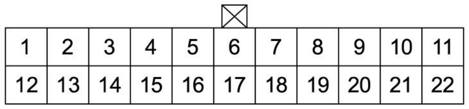
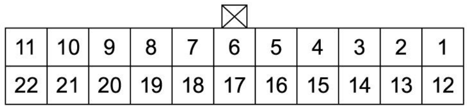
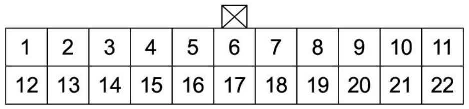
E-59	 000-020 Glow Plug #4
E-62 Black	 002-267 EGR Gas Temp (Out) Sensor 1
E-64 Black	 001-041 Glow Plug Control Module 1
E-65 Black	 012-080 Glow Plug Control Module 2
E-67	 000-021 Starter (B)
E-69 Black	 003-150 Crankshaft Position Sensor
E-74	 000-012 Engine Earth
E-148 Black	 003-150 Crankcase Pressure Sensor

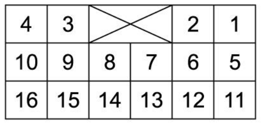
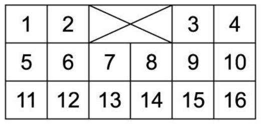
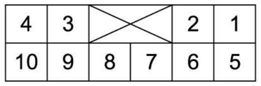
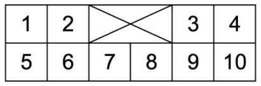
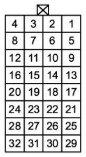
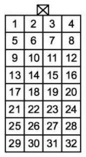
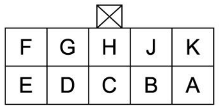
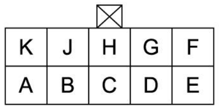
E-149 Blue	 002-267 EGR Cooler Bypass Control Solenoid Valve
E-150 Dark Gray	 002-267 EGR Gas Temperature Sensor 1
E-163 Black	 002-267 Fuel Rail Pressure (FRP) Control Valve
E-164 Black	 006-115 Heated Oxygen Sensor
H-31 White	 006-118 Inst H.–Door (LH) H.
H-31 White	 006-116 Inst H.– Door (LH) H.
H-32 Black	 006-118 Inst H.–Door (RH) H.
H-32 Black	 006-116 Inst H.–Door (RH) H.

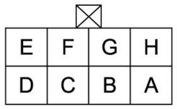
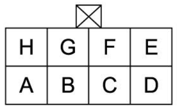
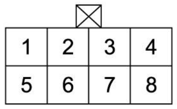
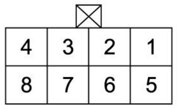
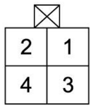
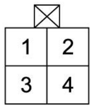
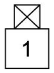
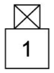
H-33 Black	 003-154 Inst H.– Floor (RH) H.
H-33 Black	 003-150 Inst H.– Floor (RH) H.
H-45 White	 006-118 Inst H.~Roof H.
H-45 White	 006-116 Inst H.– Roof H.
H-52 Black	 4 3 2 1 8 7 6 5 12 11 10 9 16 15 14 13 016-090 Frame Front H.– Engine1 H.
H-52 Black	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 016-086 Frame Front H.– Engine1 H.
H-53 Gray	 002-271 Frame Front H.– Engine2 H.
H-53 Gray	 002-267 Frame Front H.– Engine2 H.

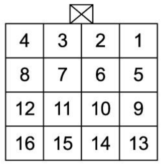
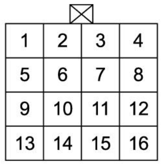
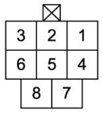
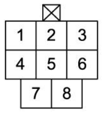
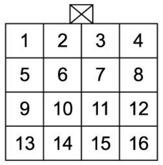
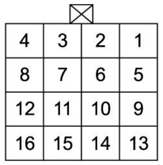
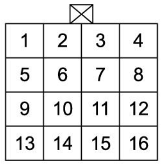
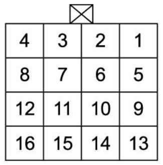
H-66 Black	 008-079 Frame Rear H.– Rear Combi H.
H-66 Black	 008-076 Frame Rear H.– Rear Combi H.
H-80 Black	 022-039 Inst H.– Frame Front H.
H-80 Black	 022-038 Inst H.– Frame Front H.
H-81 Green	 024-029 Inst H.– Frame Front H.
H-81 Green	 024-030 Inst H.– Frame Front H.
H-82 Gray	 006-127 Inst H.– Frame Front H.
H-82 Gray	 006-128 Inst H.– Frame Front H.

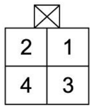
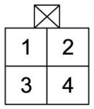
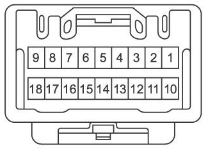
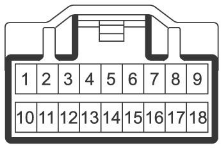
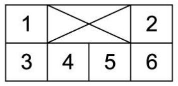
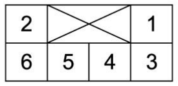
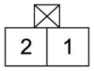
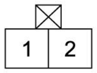
H-83 White	 5 4 3 2 1 10 9 8 7 6 010-067 Inst H. – Frame Front H.
H-83 White	 1 2 3 4 5 6 7 8 9 10 010-061 Inst H. – Frame Front H.
H-84 White	 8 7 6 5 4 3 2 1 18 17 16 15 14 13 12 11 10 9 018-027 Inst H.– Inst H.
H-84 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 018-023 Inst H.– Inst H.
H-85 Black	 006-118 Inst H.– Floor (LH) H.
H-85 Black	 006-116 Inst H.– Floor (LH) H.
H-87 Green	 4 3 2 1 10 9 8 7 6 5 010-064 Inst H.– Door (RH) H.
H-87 Green	 1 2 3 4 5 6 7 8 9 10 010-062 Inst H.–Door (RH) H.

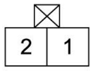
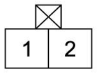
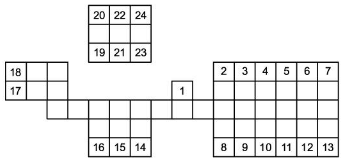
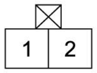
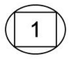
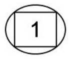
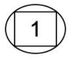
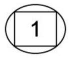
H-88 Blue	 11 10 9 8 7 6 5 4 3 2 1 22 21 20 19 18 17 16 15 14 13 12 022-039 Inst H.– Frame Front H.
H-88 Blue	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 022-038 Inst H.– Frame Front H.
H-89 Orange	 006-118 Inst H.– Frame Front H.
H-89 Orange	 006-116 Inst H.– Frame Front H.
H-90 White	 11 10 9 8 7 6 5 4 3 2 1 22 21 20 19 18 17 16 15 14 13 12 022-039 Inst H.– Frame Front H.
H-90 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 022-038 Inst H.– Frame Front H.
H-91 Gray	 11 10 9 8 7 6 5 4 3 2 1 22 21 20 19 18 17 16 15 14 13 12 022-039 Inst H.– Frame Front H.
H-91 Gray	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 022-038 Inst H.– Frame Front H.

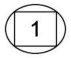
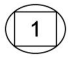
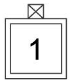
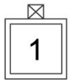
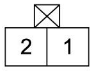
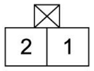
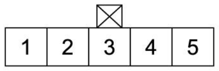
H-92 Black	 4 3 2 1 10 9 8 7 6 5 16 15 14 13 12 11 016-089 Inst H.– Door (LH) H.
H-92 Black	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 016-085 Inst H.–Door (LH) H.
H-93 White	 4 3 2 1 10 9 8 7 6 5 010-064 Inst H.– Floor (LH) H. MT AT
H-93 White	 1 2 3 4 5 6 7 8 9 10 010-062 Inst H.– Floor (LH) H. MT AT
H-101 Black	 4 3 2 1 8 7 6 5 12 11 10 9 16 15 14 13 20 19 18 17 24 23 22 21 28 27 26 25 32 31 30 29 032-028 Frame Front H.– Frame Rear H.
H-101 Black	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 032-027 Frame Front H.– Frame Rear H.
H-104 Black	 F G H J K E D C B A 010-068 Frame Rear H.– PTO2 H.
H-104 Black	 K J H G F A B C D E 010-069 Frame Rear H.– PTO2 H.

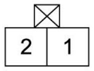
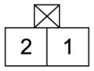
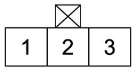
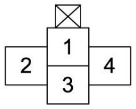
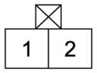
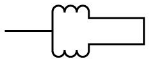
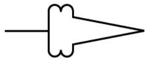
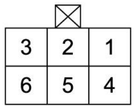
H-105 Black	 008-090 Frame Rear H.– PTO1 H.
H-105 Black	 008-089 Frame Rear H.– PTO1 H.
H-168 Black	 008-076 Engine H. – Glow H.
H-168 Black	 008-079 Engine H. – Glow H.
H-169 Light Gray	 004-132 Engine H. – Glow H.
H-169 Light Gray	 004-129 Engine H. – Glow H.
H-170 Gray	 001-084 INST H. – Frame H.
H-170 Gray	 001-084 INST H. – Frame H.

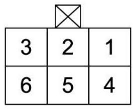
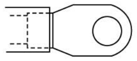
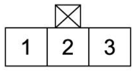
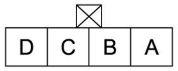
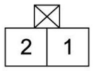
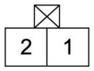
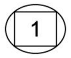
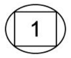
H-171 Black	 4 3 2 1 8 7 6 5 12 11 10 9 16 15 14 13 016-090 Frame H. – SCR EXT H.
H-171 Black	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 016-086 Frame H. – SCR EXT H.
H-172 Black	 008-086 Frame H. – Towing H.
H-172 Black	 008-084 Frame H. – Towing H.
H-173 Black	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 016-086 Frame H. – Dosing EXT H.
H-173 Black	 4 3 2 1 8 7 6 5 12 11 10 9 16 15 14 13 016-090 Frame H. – Dosing EXT H.
H-176 Black	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 016-086 Frame H. – EXT SCR TEMP H.
H-176 Black	 4 3 2 1 8 7 6 5 12 11 10 9 16 15 14 13 016-090 Frame H. – EXT SCR TEMP H.

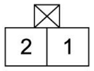
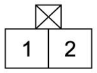
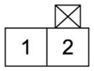
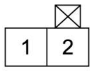
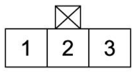
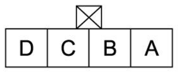
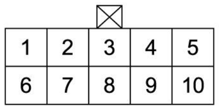
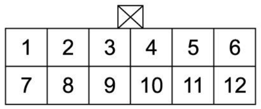
H-177 Black	 004-132 Frame H. – Trans H.
H-177 Black	 004-129 Frame H. – Trans H.
H-195 White	 9 8 7 6 5 4 3 2 1 18 17 16 15 14 13 12 11 10 018-019 INST H. – EXT Tacho H.
H-195 White	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 018-018 INST H. – EXT Tacho H.
H-234 (White)	 006-116 EXT Telematics
H-234 (White)	 006-118 EXT Telematics
H-241 (Black)	 002-271 Speed Sensor RR-LH – Wheel Speed Sensor RR_LH
H-241 (Black)	 002-267 Speed Sensor RR-LH – Wheel Speed Sensor RR_LH

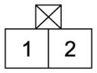
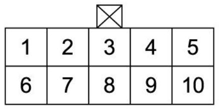
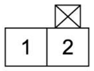
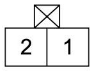
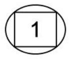
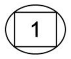
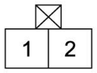
H-242 (Black)	 002-271 Speed Sensor RR-RH – Wheel Speed Sensor RR_RH
H-242 (White)	 002-267 Speed Sensor RR-RH – Wheel Speed Sensor RR_RH
J-2	 20 22 24 19 21 23 18 17 1 2 3 4 5 6 7 16 15 14 8 9 10 11 12 13 024-028 Relay Box
J-4 Gray	 002-267 Condenser Fan
J-7	 000-049 Earth Body 10
J-8	 000-049 Earth Body 11
J-9	 000-049 Earth Body 12
J-10	 000-049 Earth Body 13

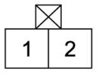
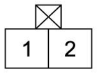
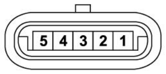
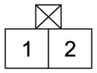
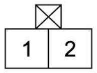
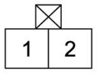
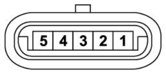
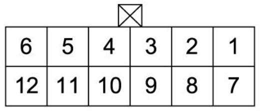
J-12	 000-049 Earth Body 4
J-13	 000-049 Earth Body 5
J-14	The final page of connector list
J-19 White	 001-039 Horn (LH)
J-20 White	 001-039 Horn (RH)
J-22	The final page of connector list
J-34 Gray	 002-271 Exhaust Gas Temperature Sensor 1
J-35 Gray	 002-271 Exhaust Gas Temperature Sensor 2
J-38 Black	 005-037 MAF and IAT 1 Sensor

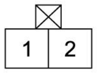
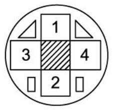
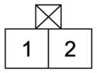
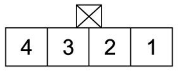
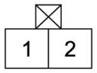
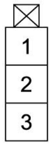
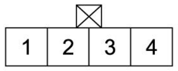
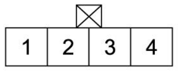
J-44 Black	 002-271 Wheel Speed Sensor Front Left
J-45 Black	 002-271 Wheel Speed Sensor Front Right
J-48 Gray	 003-150 Vehicle Speed Sensor
J-55 White	 004-130 Triple Pressure Switch
J-59 Black	 002-267 Exhaust Brake Solenoid Valve
J-71 Green	 000-025 License Plate Light (A)
J-72 Green	 000-026 License Plate Light (B)
J-73 White	 006-117 Rear Combination Light (LH)

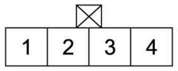
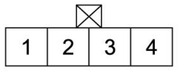
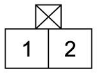
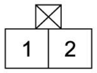
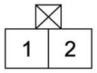
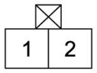
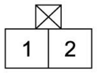
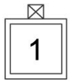
J-74 White	 006-117 Rear Combination Light (RH)
J-100	 000-021 Starter (D)
J-102 Black	 003-150 Exhaust Differential Pressure Sensor
J-104 Black	 004-139 Front Manufacture Connector
J-107 Black	 002-271 Wheel Speed Sensor Front Right
J-108 Black	 002-271 Wheel Speed Sensor Front Left
J-109	 000-049 Earth Body 14
J-110	 000-049 Earth Body 20

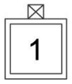
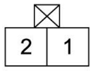
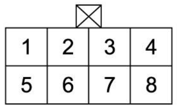
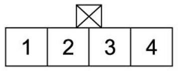
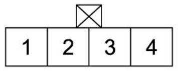
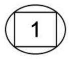
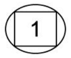
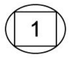
J-111 Black	 002-271 Back Buzzer (Upfitter Install)
J-112 White	 002-267 ATF Temperature Sensor (Torque Converter Clutch)
J-113 Black	 002-268 Diode 3
J-114 Black	 002-268 Diode 1
J-117 Black	 003-150 Fuel Tank Unit In
J-118 Black	 004-139 Rear Manufacture Connector
J-119 Gray	 1 2 3 4 5 6 7 8 9 10 010-061 Frame Front H.– TM Solenoid1
J-120 Black	 1 2 3 4 5 6 7 8 9 10 11 12 012-074 Frame Front H.– TM Solenoid2

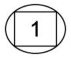
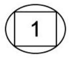
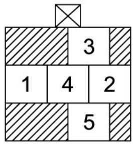
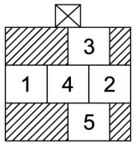
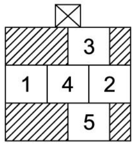
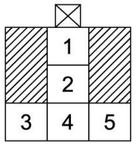
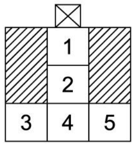
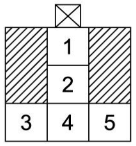
J-121 Blue	 002-267 Frame Front H.– TM Speed
J-122 Black	 010-061 Frame Front H.– TM NSSW
J-135 Black	 002-268 Diode 2
J-137 Black	 002-271 Rear Body Connector
J-141	 000-049 Earth Body SCR 1
J-142	 000-049 Earth Body SCR 2
J-143	The final page of connector list
J-144	The final page of connector list
J-145 Dark Gray	 002-267 Charge Air Cooler (CAC) Temperature Sensor 1

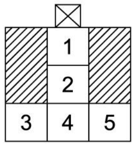
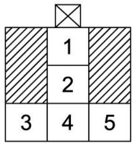
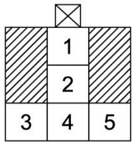
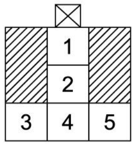
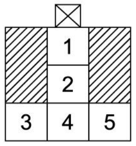
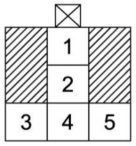
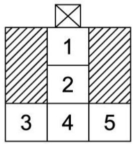
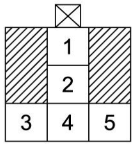
J-146 Dark Gray	 002-267 Charge Air Cooler (CAC) Temperature Sensor 2
J-147 Blue	 002-267 Air Cleaner Switch
J-148 Blue	 005-033 NOx Sensor 1
J-149 Black	 002-267 Diesel Exhaust Fluid (DEF) Injector
J-162 Black	 002-267 Resistor
J-163 Black	 002-267 Exhaust Gas Temperature (EGT) Sensor 3
J-164 Black	 005-033 NOx Sensor 2
J-165 Black	 012-079 Diesel Exhaust Fluid (DEF) Pump

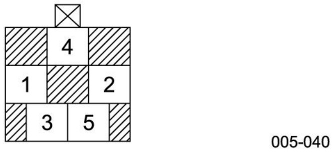
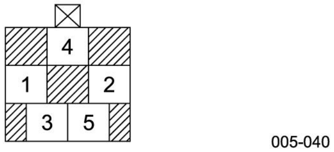
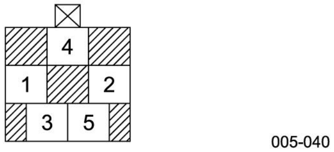
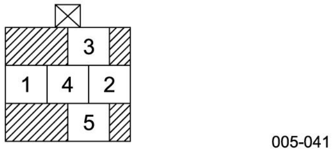
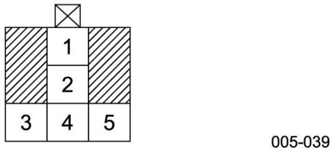
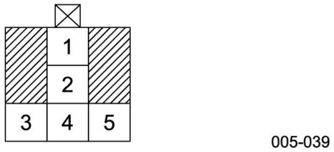
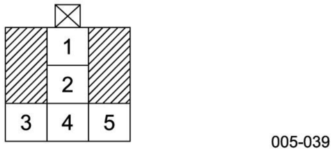
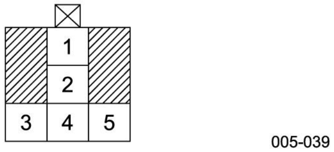
J-166 Gray	 002-267 Diesel Exhaust Fluid (DEF) Tank Heater Coolant Control Valve
J-167 Black	 004-138 Diesel Exhaust Fluid (DEF) Tank Level & Temperature Sensor
J-168 Blue	 002-267 Input Shaft Speed (ISS) Sensor
J-204 Black	 004-131 PM Sensor
J-241 Black	 002-267 Fuel Heater
L-4 White	 003-156 Dome Light
L-20 White	 004-128 J/C 3
L-21 White	 004-128 J/C 4

L-22 White	 004-128 J/C 5
L-23 White	 004-128 J/C 7
L-24 White	 002-267 Marker 1
L-25 White	 002-267 Marker 2
L-26 White	 002-267 ID 1
L-27 White	 002-267 ID 2
L-28 White	 002-267 ID 3
N-7 White	 001-039 Door Switch (RH)

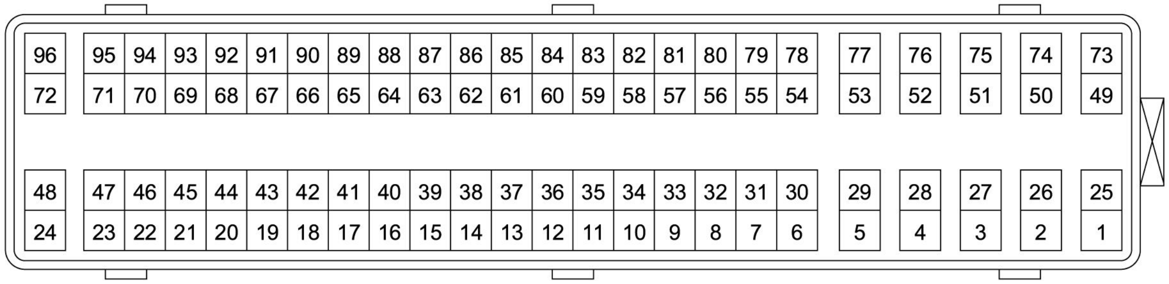
N-12 White	 001-039 Door Switch (LH)
N-14 White	 002-271 Parking Brake Switch
N-16 White	 008-076 Shift Lever
N-19 White	 004-128 J/C – 1
N-30 White	 004-128 Overdrive Off Switch
P-1	 000-049 Battery (+)
P-2	 000-049 Battery (-)
P-3	 000-049 Battery (+)

P-4	 000-049 Battery (-)
P-5	 000-049 Battery Earth
X-1 White	 005-041 Stoplight Relay
X-2 White	 005-041 DRL Relay
X-3 White	 005-041 Key On Relay
X-4 White	 005-039 TCM Relay
X-5 White	 005-039 P/N Start Relay
X-6 White	 005-039 Wiper Main Relay

X-7 White	 005-039 Horn Relay
X-8 White	 005-039 Wiper Hi/Lo Relay
X-9 White	 005-039 Trailer Stop Relay
X-12 White	 005-039 Front Power Window Relay
X-13 White	 005-039 Headlight (Lo) Relay
X-14 White	 005-039 Vacuum Pump Relay
X-15 White	 005-039 Headlight (Hi) Relay
X-16 White	 005-039 Tail Light Relay

X-17 Gray	 4 1 2 3 5 005-040 Starter Relay
X-18 Black	 4 1 2 3 5 005-040 PM Sensor Relay
X-19 Black	 4 1 2 3 5 005-040 NOx & Diesel Exhaust Fluid (DEF) Sensor Relay
X-20 Gray	 3 1 4 2 5 005-041 Magnetic Clutch Relay
X-21 Gray	 1 2 3 4 5 005-039 Condenser Fan Relay
X-23 Gray	 1 2 3 4 5 005-039 Heater Valve
X-26 Black	 1 2 3 4 5 005-039 Marker Light Relay
X-30 Black	 1 2 3 4 5 005-039 Fuel Heater Relay

E-12 (Black)/ J-14 (Black) ECM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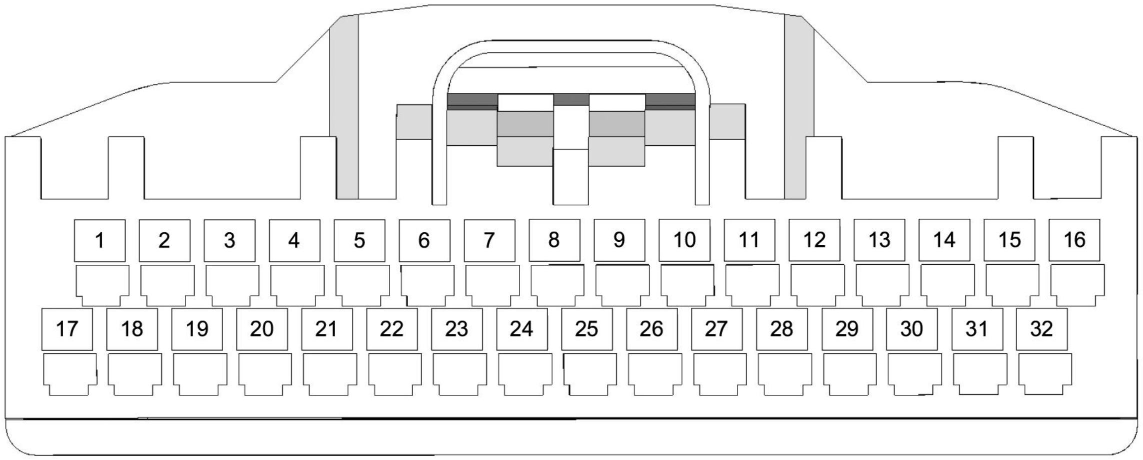
B-451 (Gray) FMS CAN Interface Control Unit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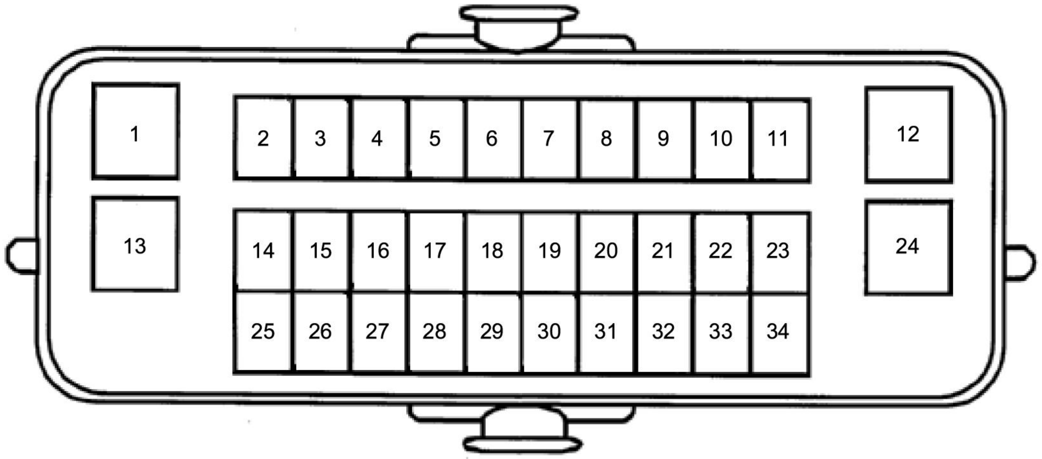
J-22 (Black) EHCU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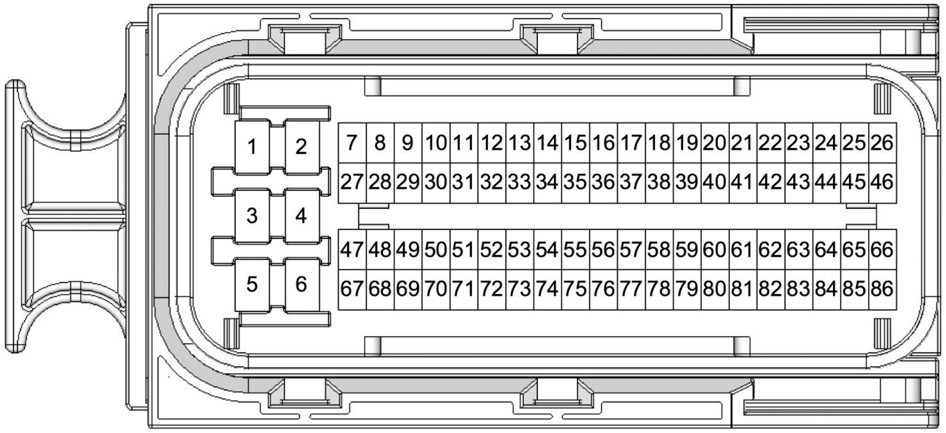
LNWD5ASF000101

J-143 (Black) Diesel Exhaust Fluid (DEF) Control Module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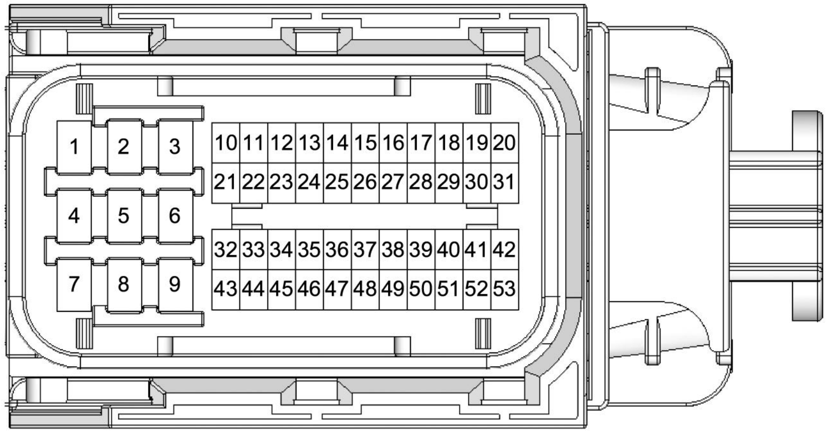
LNWA6FSF000101

J-144 (Black) Diesel Exhaust Fluid (DEF) Control Module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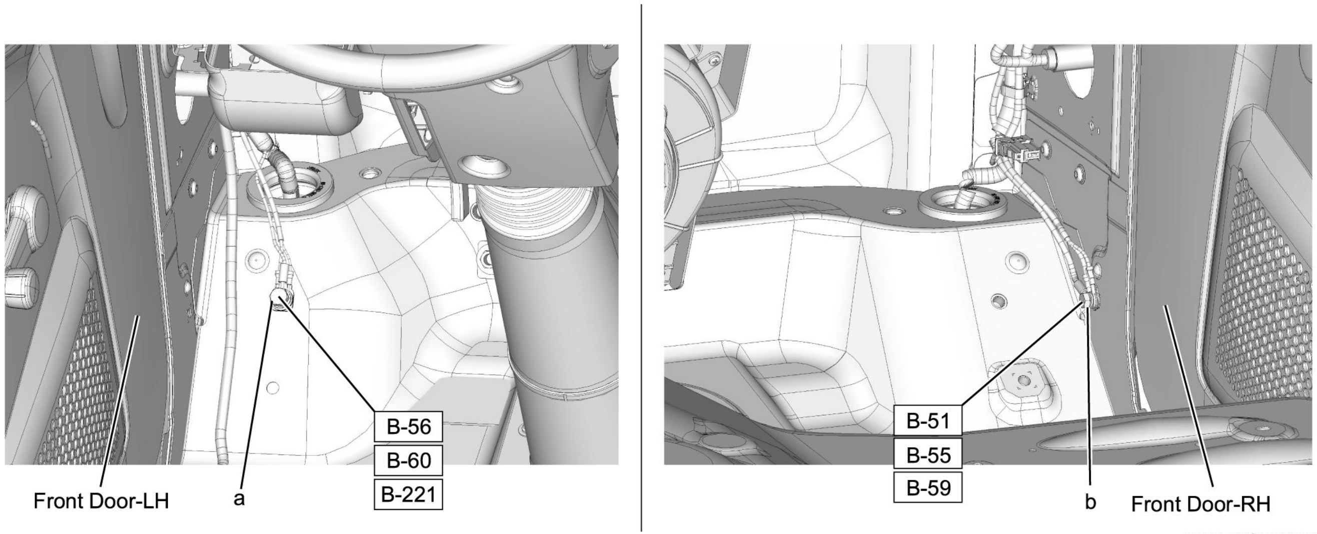
LNWA6FSF000201

Component Locator

Ground Views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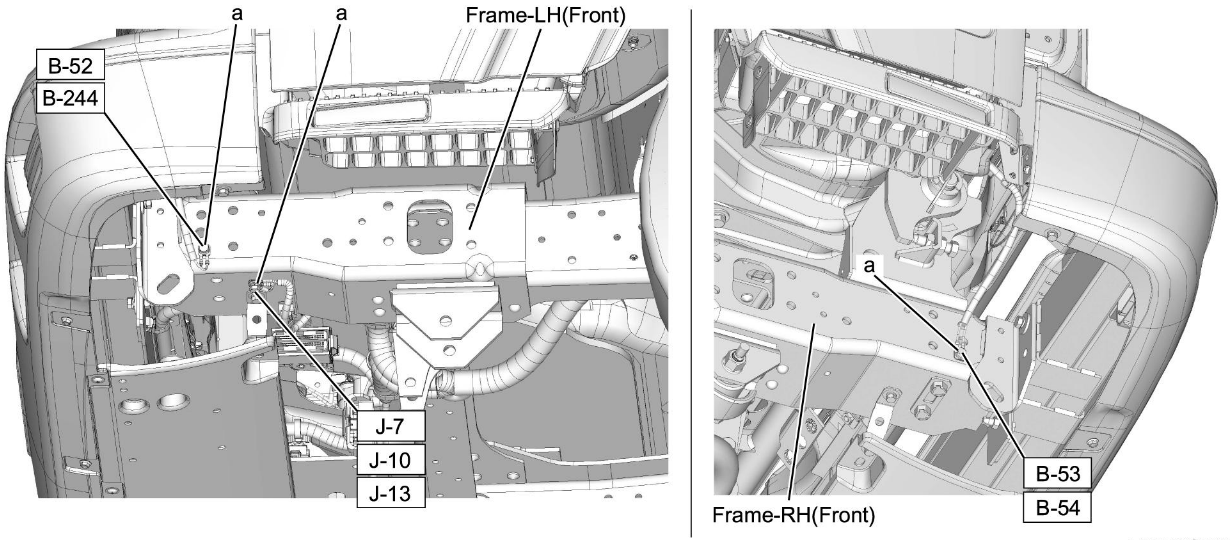
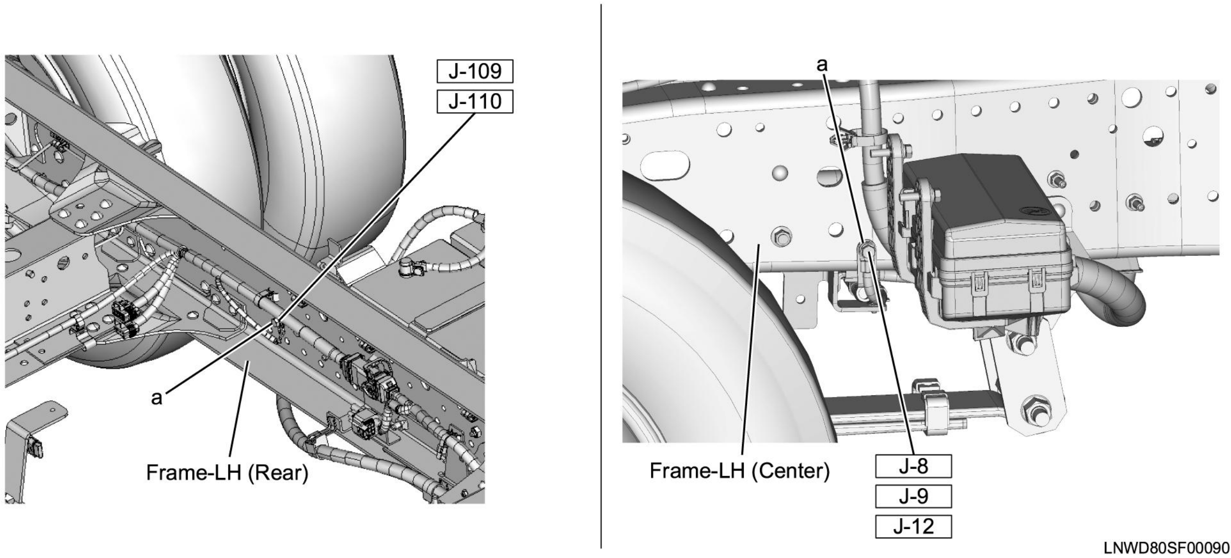
B-60
B-221
Front Door-LH
a
B-51
B-55
B-59
b
Front Door-RH

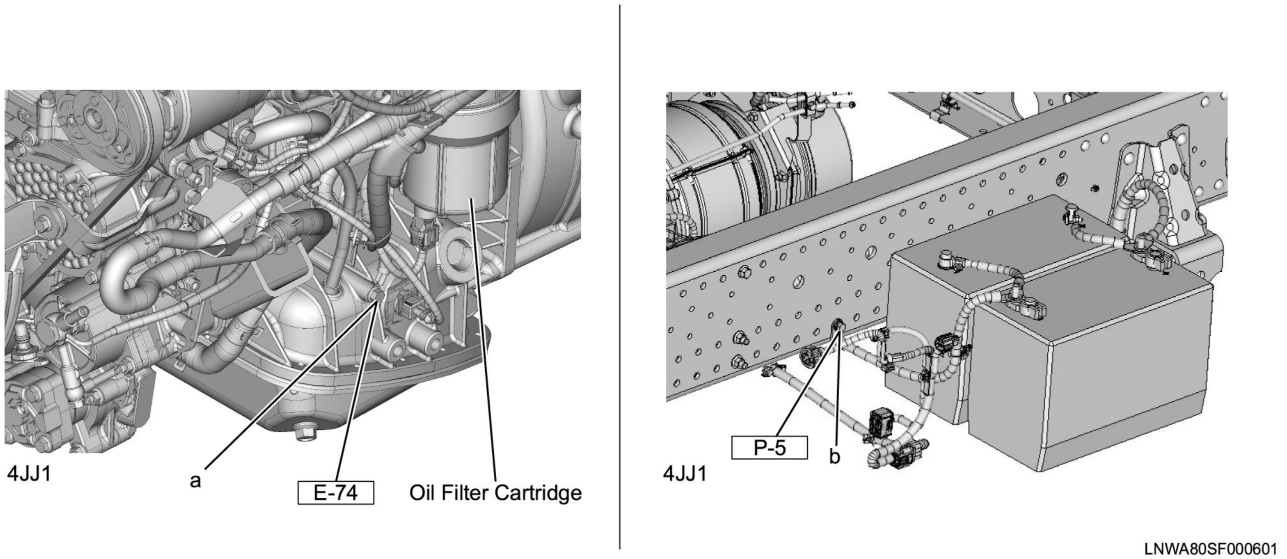
LNWE80SF000601


a
a
Frame-LH(Front)
B-52
B-244
J-7
J-10
J-13
a
Frame-RH(Front)
B-53
B-54

LNW780SF001101

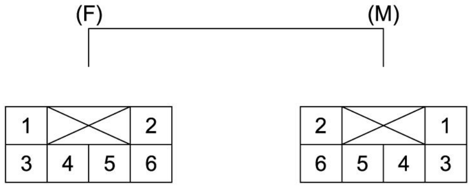

J-109
J-110
a
Frame-LH (Rear)
a
Frame-LH (Center)
J-8
J-9
J-12

LNWD80SF000901


4JJ1
a
E-74
Oil Filter Cartridge
P-5
b
4JJ1
LNWA80SF000601

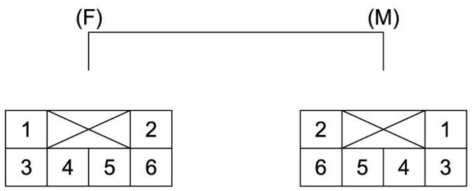
Visual Identification

Inline Harness Connector End Views



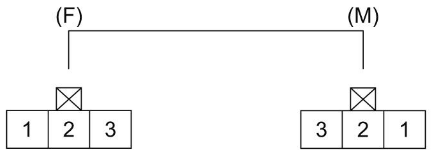
LNW78DSH000201

Connector No.	**H-31**			
Connector Color	**White**			
Test Adapter No.	**(M) J-35616-4A**		**(F) J-35616-5**	
	Male		**Female**	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	GRY	J/C 10P BASE3 B-507(7)	BLK	Side Turn Light(LH)
2	GRN/BLK	Sub Junction Block 1 B-132(14)	GRN/BLK	Side Turn Light(LH)
3	GRN/RED	Sub Junction Block 1 B-132(1)	GRN/RED	Side Marker Light(LH)
4	ORN	Audio	ORN	Speaker(LH)
5	GRN	Combination Switch	GRN/BLK	Front Cornering Light(LH)
6	BLK	Audio	BLK	Speaker(LH)



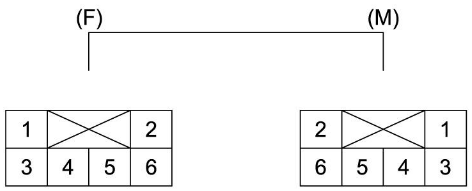
LNW78DSH000201

Connector No.	H-32			
Connector Color	Black			
Test Adapter No.	(M) J-35616-4A		(F) J-35616-5	
	Male		Female	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	GRY	J/C 10P BASE2 B-506(7)	BLK	Side Turn Light(RH)
2	GRN/WHT	Sub Junction Block 1 B-132(11)	GRN/WHT	Side Turn Light(RH)
3	GRN/RED	Sub Junction Block 1 B-131(6)	GRN/RED	Side Marker Light(RH)
4	GRY	Audio	GRY	Speaker(RH)
5	GRN/WHT	Combination Switch	GRN/WHT	Front Cornering Light(RH)
6	GRN	Audio	GRN	Speaker(RH)



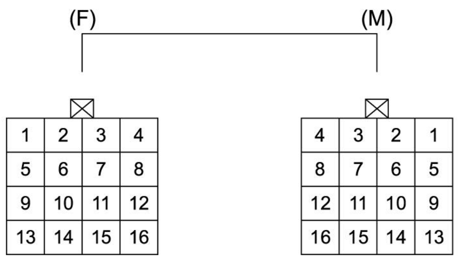
LNWF80SH000401

Connector No.	H-33			
Connector Color	Black			
Test Adapter No.	(M) J-35616-44		(F) J-35616-45	
	Male		Female	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	VIO	Cab Junction Block1 B-20(7)	GRY	Door Switch RH
2	—	Not Used	—	Not Used
3	—	Not Used	—	Not Used



LNW78DSH000201

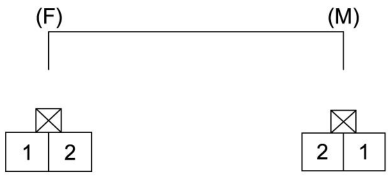
Connector No.	H-45			
Connector Color	White			
Test Adapter No.	(M) J-35616-4A		(F) J-35616-5	
	Male		Female	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	—	Not Used	—	Not Used
2	BRN	J/C 10P BASE1 B-505(6)	RED	Dome Light
3	GRY	Cab Junction Block1 B-22(6)	GRY/BLU	Dome Light
4	GRN/RED	Cab Junction Block1 B-22(9)	GRN/RED	Joint Connector7
5	GRY	Cab Junction Block1 B-22(9)	—	Not Used
6	GRY	J/C 10P BASE2 B-506(8)	BLK	Joint Connector5



LNW78DSH000401

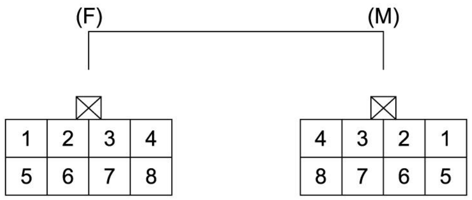
Connector No.	**H-52**			
Connector Color	**Black**			
Test Adapter No.	**(M) J-35616-12**		**(F) J-35616-13**	
	Male		**Female**	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	BLU/YEL	H-81 (23)	BLU/YEL	Engine Oil Pressure Switch
2	GRN/WHT	H-80 (7)	GRN/WHT	Oil Level Switch
3	BRN/YEL	Triple Pressure Switch	BRN/YEL	A/C Compressor
		ECM		
4	BLK/WHT	Starter Relay	WHT/BLK	ECM
5	BLU/WHT	ECM	BLU/WHT	Glow Plug Control Module
6	BLU	ECM	BLU	Glow Plug Control Module
7	BLU/WHT	H-90(8)	BLU/WHT	Glow Plug Control Module
8	BLU	H-90(7)	BLU	Glow Plug Control Module
9	GRY/RED	H-101(20)	GRY/RED	ECM
10	RED/BLU	H-101(21)	RED/BLU	ECM
11	BLU/WHT	H-80(19)	BLU/WHT	ECM
12	BLK/YEL	PM Sensor Relay	BLK/YEL	ECM
13	BLU/ORN	PM Sensor Relay	BLU/ORN	ECM
		Vehicle Speed Sensor		Turbocharger Nozzle Control Solenoid Valve
14	BRN/WHT	H-81(16)	BLU/BLK	Fuel Sedimenter Switch

15	BLK/BLU	Fuse: PM Sensor	RED	Glow Plug Control Module 2
16	WHT/BLU	H-80(12) Fuel Heater Relay	WHT/BLU	Generator



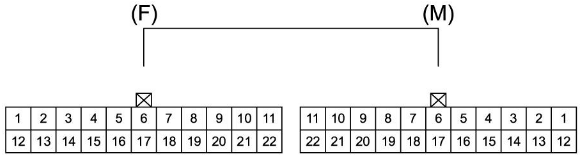
LNW78DSH000501

Connector No.	**H-53**			
Connector Color	**Gray**			
Test Adapter No.	**(M) J-35616-21**		**(F) J-35616-22**	
	Male		**Female**	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	BLU/BLK	SBF GLOW (60A)	BLU/BLK	Glow Plug Control Module
2	BLK/WHT	Starter	BLK/WHT	Starter Relay



LNW78DSH000601

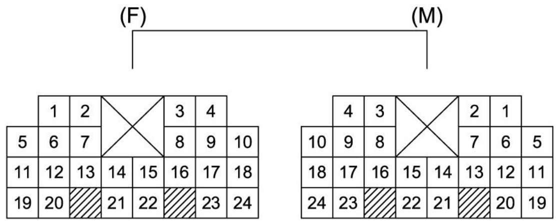
Connector No.	H-66			
Connector Color	Black			
Test Adapter No.	(M) J-35616-18		(F) J-35616-19	
	Male		Female	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	GRN/BLK	Rear Combination Light (LH)	GRN/BLK	H-101 (1)
2	GRN	Rear Combination Light (RH)	GRN	H-101 (3)
		Rear Combination Light (LH)		
3	—	Not Used	—	Not Used
4	—	Not Used	—	Not Used
5	GRN/RED	License Plate Light	GRN/RED	H-101 (5)
		Rear Combination Light (LH)		
		Rear Combination Light (RH)		
6	RED/BLU	Rear Combination Light (LH)	RED/BLU	H-101 (28)
		Rear Combination Light (RH)		Back Buzzer
7	BLK	Rear Combination Light (RH)	BLK	W/S-6
		Rear Combination Light (LH)		
		License Plate Light		
8	GRN/WHT	Rear Combination Light (RH)	GRN/WHT	H-101 (2)



LNW78DSH004101

Connector No.	H-80			
Connector Color	Black			
Test Adapter No.	(M) J-35616-18		(F) J-35616-19	
	Male		Female	
Pin No.	Wire Color	Pin Function	Wire Color	Pin Function
1	VIO	Sub Junction Block 1 B-135(7)	BLK/ORN	ECM
2	GRY	Sub Junction Block 1 B-131(7)	BLK	Vehicle Speed Sensor
3	LT GRN	Combination Switch	PNK/BLU	Diode2/ECM
4	—	Not Used	—	Not Used
5	—	Not Used	—	Not Used
6	—	Not Used	—	Not Used
7	BLU	IP Cluster	GRN/WHT	H-52 (2)
8	VIO	IP Cluster	ORN/BLU	ECM
9	LT BLU	Cruise Main Switch	GRY/BLU	ECM
10	YEL	Wiper Exhaust Brake Switch	LT GRN/RED	ECM
11	BLU	IP Cluster	YEL/BLK	ECM
12	LT BLU	Sub Junction Block 1 B-131(10)	WHT/BLU	H-52(16)
13	—	Not Used	—	Not Used
14	—	Not Used	—	Not Used
15	BRN	Combination Switch	GRY	Diode1/ECM
16	GRN	IP Cluster	BLK/ORN	Air Cleaner Switch
17	YEL	Cab Junction Block1 B-21(7)	BLK/RED	Inhibitor Switch (10)

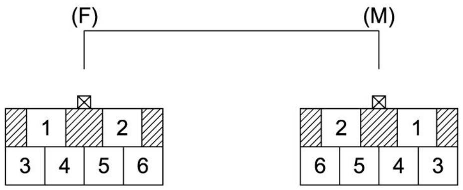
17	YEL	Cab Junction Block1 B-21(7)	BLK/RED	Inhibitor Switch (10)
18	—	Not Used	—	Not Used
19	BRN	DPF Regeneration Switch	BLU/WHT	H-52(11)
20	YEL	J/C 10P BASE1 B-505(3)	YEL	Rear Dome Light Relay
21	—	Not Used	—	Not Used
22	LT GRN	Stoplight Switch	RED/WHT	ECM



LNW78DSH004201

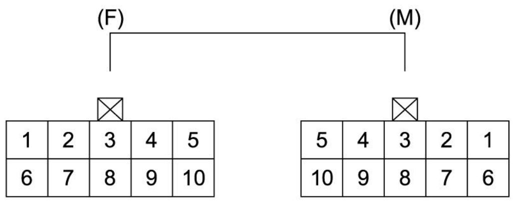
Connector No.	H-81			
Connector Color	Green			
Test Adapter No.	(M) J-35616-12/ J-35616-40		(F) J-35616-13/ J-35616-41	
	Male		Female	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	LT BLU	Cab Junction Block1 B-18(9)	RED/BLK	Horn (RH) Horn (LH)
2	—	Not Used	—	Not Used
3	VIO	Sub Junction Block 1 B-135(8)	GRN/WHT	H-101 (2)/H-172 (4)
4	LT GRN	Cab Junction Block 1 B-22(15)	BLK/WHT	Starter Relay
5	VIO	Sub Junction Block 1 B-136 (5)	GRN/BLK	H-101 (1)
6	RED/BLU	H-84 (12)	RED/BLU	Linear Solenoid 2
7	RED/YEL	H-84 (7)	RED/YEL	Linear Solenoid 2
8	RED/WHT	H-84 (10)	RED/WHT	Linear Solenoid 4
9	RED/BLK	H-84 (3)	RED/BLK	Linear Solenoid 4
10	BRN	IP Cluster	LT GRN/WHT	H-101 (6)
11	—	Not Used	—	Not Used
12	RED	H-84 (11)	RED	Linear Solenoid 3
13	RED/GRN	H-84 (6)	RED/GRN	Linear Solenoid 3
14	WHT/RED	W/S-25	WHT/RED	SBF Headlight(30A)
15	BLK/RED	Cab Junction Block 1 B-25 (1)	BLK/RED	SBF Starter Switch 1 (30A)
16	BEI	IP Cluster	BRN/WHT	H-52 (14)

17	LT BLU	Sub Junction Block 1 B-136 (12)	GRN	H-101 (3)/H—172 (1) ECM EHCU
18	—	Not Used	—	Not Used
19	—	Not Used	—	Not Used
20	YEL	Sub Junction Block 1 B-135 (10)	RED/BLK	H-101 (31) Inhibitor Switch
21	BLK/YEL	W/S-10	BLK/YEL	SBF Junction Block (50A)
22	WHT/BLK	Cab Junction Block 1 B-26 (2)	WHT/BLK	SBF Wiper (50A)
23	LT GRN	IP Cluster	BLU/YEL	H-52 (1)
24	—	Not Used	—	Not Used



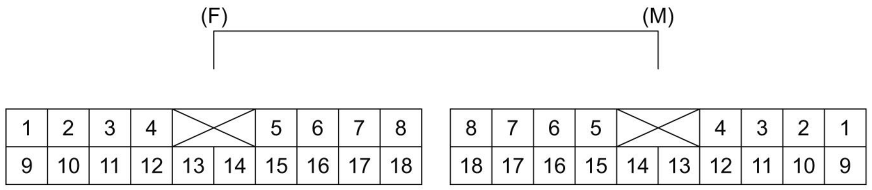
LNW78DSH004301

Connector No.	**H-82**			
Connector Color	**Gray**			
Test Adapter No.	**(M) J-35616-12/ J-35616-44**		**(F) J-35616-13/ J-35616-45**	
	Male		**Female**	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	WHT/BLK	Blower Relay	WHT/BLK	SBF HVAC(40A)
2	RED/BLK	Power ACC Relay	RED/BLK	SBF POWER ACC(50A)
3	—	Not Used	—	Not Used
4	BRN	Sub Junction Block 1 B-132(2)	GRN/RED	Marker Light Relay
5	BLK/YEL	W/S-8	BLK/YEL	SBF Starter Switch 2 (40A)
6	BLK/YEL	W/S-8	BLK/YEL	SBF Starter Switch 2 (40A)



LNW78DSH000701

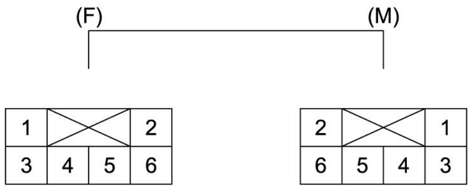
Connector No.	H-83			
Connector Color	White			
Test Adapter No.	(M) J-35616-18		(F) J-35616-19	
	Male		Female	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	GRY	J/C-101	BLK	ECM
2	WHT	Accelerator Pedal Position Sensor	WHT	ECM
3	—	Not Used	—	Not Used
4	BLU/WHT	Accelerator Pedal Position Sensor	BLU/WHT	ECM
5	BLU	Accelerator Pedal Position Sensor	BLU	ECM
6	GRY	J/C-101	—	Shield
7	RED	Accelerator Pedal Position Sensor	RED	ECM
8	—	Not Used	—	Not Used
9	BLU	J/C-100	BLU/RED	ECM
10	BLU	J/C-100	—	Shield



LNWF80SF000301

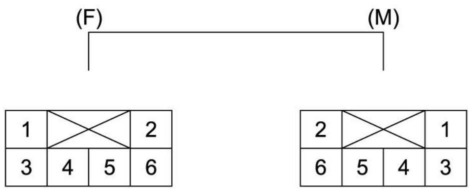
Connector No.	H-84			
Connector Color	White			
Test Adapter No.	(M) J-35616-4A		(F) J-35616-5	
	Male		Female	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	BLU	IP Cluster	BLU	CAN1 JOINT Mimamori L
2	YEL/BLK	IP Cluster	YEL/BLK	TCM
3	RED/BLK	H-81 (9)	RED/BLK	TCM
4	WHT/BLK	H-85 (4)	WHT/BLK	DRL Control Unit
5	RED/BLU	DRL Relay B-21 (5)	RED/BLU	DRL Control Unit
6	RED/GRN	H-81 (13)	RED/GRN	TCM
7	RED/YEL	H-81 (7)	RED/YEL	TCM
8	VIO	IP Cluster	VIO	TCM
9	BLU/WHT	IP Cluster	BLU/WHT	CAN1 JOINT Mimamori H
10	RED/WHT	H-81 (8)	RED/WHT	TCM
11	RED	H-81 (12)	RED	TCM
12	RED/BLU	H-81 (6)	RED/BLU	TCM
13	BLU/WHT	Sub Junction Block 1 B-132 (16)	BLU/WHT	Diode Door Lock
14	PNK/BLU	Key Remained Switch	PNK/BLU	Keyless Entry Control Unit
15	YEL/GRN	IP Cluster	YEL/GRN	DRL Control Unit
16	RED	IP Cluster	RED	Cab Junction Block 1 B-19 (8)
17	LT GRN	Cornering Light Relay	LT GRN	Cab Junction Block 1 B-20 (6)

17	LT GRN	Cornering Light Relay	LT GRN	Cab Junction Block1 B-20 (3)
18	WHT/BLU	IP Cluster	WHT/BLU	TCM



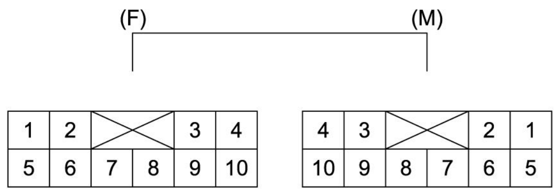
LNW78DSH000201

Connector No.	**H-85 (Crew Cab Only)**			
Connector Color	**Black**			
Test Adapter No.	**(M) J-35616-4A**		**(F) J-35616-5**	
	Male		**Female**	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	—	Not Used	—	Not Used
2	GRY	Door Switch (LH)	GRY	Cab Junction Block1 B-17 (2)
3	—	Not Used	—	Not Used
4	WHT/BLK	Parking Brake Switch	WHT/BLK	H-84 (4)
5	—	Not Used	—	Not Used
6	—	Not Used	RED/YEL	W/S-19



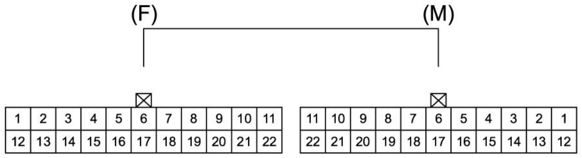
LNW78DSH000201

Connector No.	H-85 (Tilt Cab Only)			
Connector Color	Black			
Test Adapter No.	(M) J-35616-4A		(F) J-35616-5	
	Male		Female	
Pin No.	Wire Color	Pin Function	Wire Color	Pin Function
1	WHT/GRN	Seat Belt Switch	WHT/GRN	(IP) Cluster
2	GRY	Door Switch (LH)	GRY	Cab Junction Block1 B-17 (2)
3	—	Not Used	—	Not Used
4	WHT/BLK	Parking Brake Switch	WHT/BLK	H-84 (4)
5	VIO	Shift Lever	VIO	Key Lock Solenoid
6	—	Not Used	RED/YEL	Not Used



LNW78DSH000901

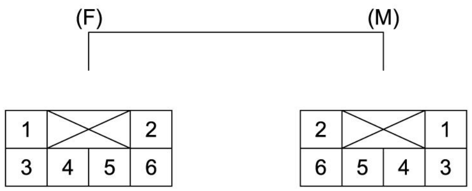
Connector No.	**H-87**			
Connector Color	**Green**			
Test Adapter No.	**(M) J-35616-4A**		**(F) J-35616-5**	
	Male		**Female**	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	BLK	Earth Joint 10P1	BLK	Mirror Heater (RH)
2	VIO	J/C 10P BASE ADD1 B-508(3)	GRN/RED	Front Door Lock Motor (RH)
3	BLK/RED	Sub Junction Block 1 B-133(14)	BLK/RED	Front Cornering Light (RH)
4	BLU/WHT	H-92(16)	BLU/WHT	Front Power Window Switch (RH)
5	GRY	W/S-13	BLK	Side Marker Light(RH)
6	BRN/YEL	Cab Junction Block 1 B-15(5)	BRN/YEL	Front Power Window Switch (RH)
7	LT BLU	J/C 10P BASE ADD1 B-508(8)	GRN/YEL	Front Door Lock Motor (RH)
8	BLU/RED	H-92(4)	BLU/RED	Front Power Window Switch (RH)
9	RED/YEL	Mirror Heater Switch	RED/YEL	Mirror Heater (RH)
10	—	Not Used	—	Not Used



LNW78DSH004101

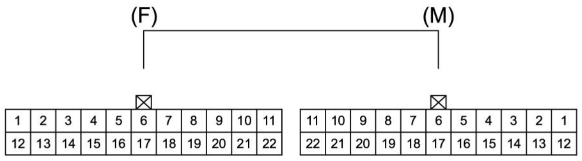
Connector No.	**H-88**			
Connector Color	**Blue**			
Test Adapter No.	**(M) J-35616-16**		**(F) J-35616-17**	
	Male		**Female**	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	BRN	TCM	BLK/GRN	H-177 (1)
2	LT BLU	TCM	BLK/YEL	Transmission Fluid Temperature (TFT) Sensor Valve Body (J-119)
3	YEL	TCM	WHT	Transmission Fluid Temperature (TFT) Sensor Valve Body (J-119)
4	BLU	TCM	WHT/RED	Inhibitor Switch (J-122)
5	VIO	TCM	RED/BLU	Inhibitor Switch (J-122)
6	—	Not Used	—	Not Used
7	LT BLU	TCM	BLU/YEL	Inhibitor Switch (J-122)
8	LT GRN	TCM	BLU/RED	Inhibitor Switch (J-122)
9	BRN	TCM	BLU/WHT	Inhibitor Switch (J-122)
10	BRN	TCM	YEL/RED	Linear Solenoid1 (SL1) (J-119)
11	YEL	TCM	YEL/BLK	Linear Solenoid1 (SL1) (J-119)
12	—	Not Used	—	Not Used
13	VIO	TCM	ORN	Transmission Fluid Pressure (TFP) Switch (J-120)
14	BRN	TCM	RED/YEL	ECM
15	VIO	TCM	GRY	Transmission Fluid Pressure (TFP) Switch (J-120)

16	LT GRN	TCM	VIO	Transmission Fluid Pressure (TFP) Switch (J-120)
17	BLU	TCM	WHT	Transmission Fluid Pressure (TFP) Switch (J-119)
18	LT BLU	TCM	YEL	Transmission Fluid Pressure (TFP) Switch (J-119)
19	BLU	TCM	RED	Transmission Fluid Pressure (TFP) Switch (J-120)
20	BRN	TCM	BLU/BLK	Transmission Fluid Pressure (TFP) Switch (J-119)
21	YEL	TCM	WHT/BLU	Transmission Fluid Pressure (TFP) Switch (J-119)
22	BLU	TCM	BLU	Inhibitor Switch (J-122)



LNW78DSH000201

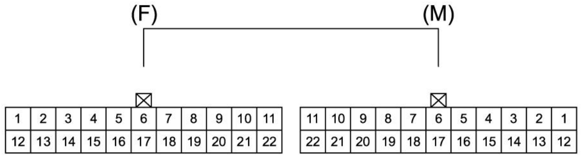
Connector No.	H-89			
Connector Color	Orange			
Test Adapter No.	(M) J-35616-4A		(F) J-35616-5	
	Male		Female	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	BLU	TCM	WHT/GRN	Shift Solenoid
2	VIO	TCM	YEL/BRN	Shift Solenoid
3	LT BLU	TCM	YEL	Shift Solenoid
4	LT GRN	TCM	RED/YEL	Shift Solenoid
5	BLU	Sub Junction Block1 B-133 (1)	GRN/BLK	Fuse Tail Main (20A)
6	LT BLU	Sub Junction Block1 B-138 (18)	GRN/BLK	Fuse Tail Main (20A)


(F)
(M)
1 2 3 4 5 6 7 8 9 10 11
12 13 14 15 16 17 18 19 20 21 22
11 10 9 8 7 6 5 4 3 2 1
22 21 20 19 18 17 16 15 14 13 12

LNW78DSH004101

Connector No.	**H-90**			
Connector Color	**White**			
Test Adapter No.	**(M) J-35616-18**		**(F) J-35616-19**	
	Male		**Female**	
Pin No.	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	—	Not Used	—	Not Used
2	—	Not Used	—	Not Used
3	—	Not Used	—	Not Used
4	—	Not Used	—	Not Used
5	—	Not Used	—	Not Used
6	—	Not Used	—	Not Used
7	BLU	CAN1 JOINT FMS-L	BLU	H-52 (8)
8	BLU/WHT	CAN1 JOINT FMS-H	BLU/WHT	H-52 (7)
9	—	Not Used	—	Not Used
10	—	Not Used	—	Not Used
11	BRN	Electronic Thermostat	GRY	Magnetic Clutch Relay
12	—	Not Used	—	Not Used
13	BRN	J/C 10P ADD4 B-520 (7)	PNK	H101 (30)
14	—	Not Used	—	Not Used
15	—	Not Used	—	Not Used
16	—	Not Used	—	Not Used
17	VIO	Rear Body Switch	GRY/PNK	Front Manufacture Connector

17	VIO	Rear Body Switch	GRY/PNK	Front Manufacture Connector
18	—	Not Used	—	Not Used
19	—	Not Used	—	Not Used
20	BLU	PTO Engine Speed Control Switch	BLU/ORN	H-101 (4) Diode 2
21	YEL	PTO Engine Speed Control Switch	BLU/YEL	H-101 (7) Diode 1
22	VIO	J/C 10P ADD3 B-519(4)	BLK/RED	Magnetic Clutch Relay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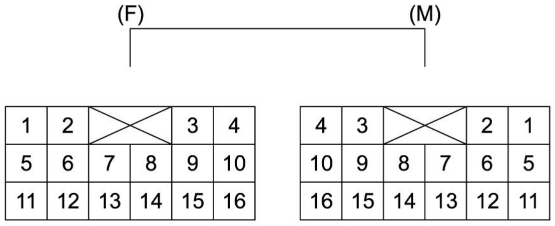
(M)
1 2 3 4 5 6 7 8 9 10 11
12 13 14 15 16 17 18 19 20 21 22
11 10 9 8 7 6 5 4 3 2 1
22 21 20 19 18 17 16 15 14 13 12

LNW78DSH004101

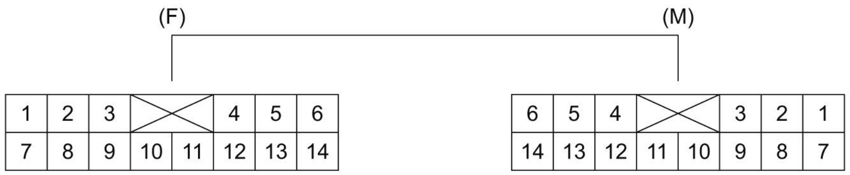
Connector No.	**H-91**			
Connector Color	**Gray**			
Test Adapter No.	**(M) J-35616-18**		**(F) J-35616-19**	
	Male		**Female**	
Pin	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	WHT	Sub Junction Block 1 B-137 (4)	BLK/YEL	EHCU
2	GRN/WHT	CAN2 JOINT Check-H	GRN/WHT	H-176 (13)/ECM Diesel Exhaust Fluid (DEF) Control Module
3	—	Not Used	—	Not Used
4	BRN	TCM	BLK/RED	H-177 (4)
5	YEL	TCM	WHT/BLK	Output Shaft Speed Sensor
6	—	Not Used	—	Not Used
7	LT BLU	Sub Junction Block 1 B-138(5)	BLK/WHT	H-91(9)
8	—	Not Used	—	Not Used
9	BLK/BLU	DRL Control Unit	BLK/WHT	H-91(7)
10	—	Not Used	—	Not Used
11	—	Not Used	—	Not Used
12	WHT	Sub Junction Block 1 B-133(16)	LT GRN/BLU	EHCU
13	GRN	CAN2 JOINT Check-L	GRN	H-176 (14) ECM Diesel Exhaust Fluid (DEF) Control Module
14	—	Not Used	—	Not Used

15	LT BLU	J/C-50	WHT/RED	H-177 (3)
16	LT BLU	J/C-50	WHT/RED	Output Shaft Speed Sensor
17	—	Not Used	—	Not Used
18	—	Not Used	—	Not Used
19	YEL	TCM	BLU/BLK	ECM
20	—	Not Used	—	Not Used
21	LT BLU	Cab Junction Block 1 B-20 (4)	BLK/ORN	EHCU
				Diesel Exhaust Fluid (DEF) Control Module
22	—	Not Used	—	Not Used



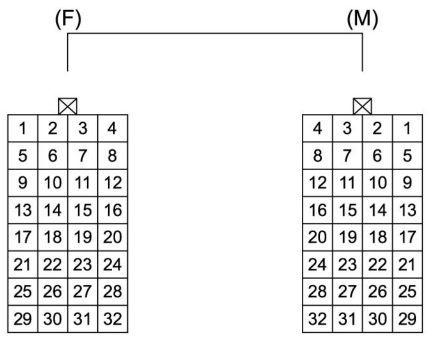
LNW78DSH001001

Connector No.	H-92			
Connector Color	Black			
Test Adapter No.	(M) J-35616-4A		(F) J-35616-5	
	Male		Female	
Pin	Wire Color	Pin Function	Wire Color	Pin Function
1	LT BLU	Sub Junction Block 1 B-134(14)	GRN/BLK	Front Door Lock Motor (LH)
2	LT GRN	Sub Junction Block 1 B-134(17)	BLK/RED	Front Cornering Light (LH)
3	VIO	Keyless Entry Control Unit	RED/GRN	Front Door Lock Motor (LH)
4	BLU/RED	H-87(8)	BLU/RED	Front Power Window Switch (LH)
5	VIO	J/C 10P ADD1 B-508(2)	GRN/RED	Front Door Lock Motor (LH)
6	—	Not Used	—	Not Used
7	BRN/YEL	Cab Junction Block 1 B-23(2)	BRN/YEL	Front Power Window Switch (LH)
8	LT GRN	J/C 10P ADD3 B-519(10)	RED/YEL	Mirror Heater (LH)
9	GRY	Earth Joint 10P2	BLK	Mirror Heater (LH)
10	GRY	W/S-11	BLK	Front Door Lock Motor (LH)
11	BLK	Earth Joint 10P2	BLK	Front Power Window Switch (LH)
12	—	Not Used	—	Not Used
13	LT BLU	J/C 10P ADD1 B-508(7)	GRN/YEL	Front Door Lock Motor (LH)
14	—	Not Used	—	Not Used
15	GRY	W/S-16	BLK	Side Marker Light (LH)
16	BLU/WHT	H-87(4)	BLU/WHT	Front Power Window Switch (LH)



LNWH80SF000201

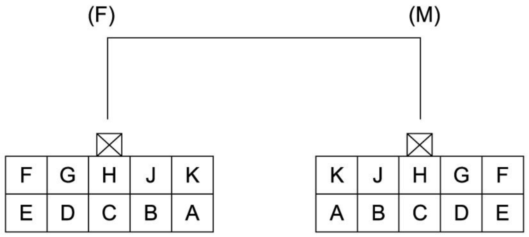
Connector No.	H-93			
Connector Color	White			
Test Adapter No.	(M) J-35616-4A		(F) J-35616-5	
	Male		Female	
Pin	Wire Color	Pin Function	Wire Color	Pin Function
1	LT GRN/RED	Overdrive Switch	LT GRN/RED	Sub Junction Block 1 B-138(9)
2	WHT/BLU	Overdrive Switch	WHT/BLU	TCM
3	LT GRN/BLK	Overdrive Switch	LT GRN/BLK	Sub Junction Block 1 B-134(15)
4	BLK	J/C 1	GRY	W/S-11
5	—	Not Used	—	Not Used
6	—	Not Used	—	Not Used
7	—	Not Used	—	Not Used
8	—	Not Used	—	Not Used
9	—	Not Used	—	Not Used
10	—	Not Used	—	Not Used
11	LT GRN	Shift Lever	LT GRN	W/S-22
12	GRN/YEL	Shift Lever	GRN/YEL	Sub Junction Block 1 B-138 (11)
13	GRN	Shift Lever	GRN	J/C 10P ADD 4 B-520 (3)
14	—	Not Used	—	Not Used


(F)
(M)
1 2 3 4
5 6 7 8
9 10 11 12
13 14 15 16
17 18 19 20
21 22 23 24
25 26 27 28
29 30 31 32
4 3 2 1
8 7 6 5
12 11 10 9
16 15 14 13
20 19 18 17
24 23 22 21
28 27 26 25
32 31 30 29

LNW78DSH001201

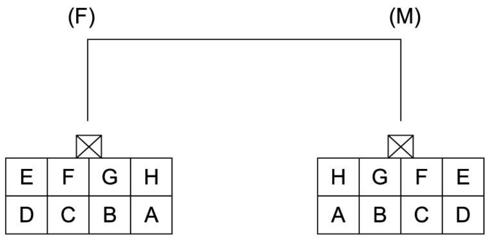
Connector No.	**H-101**			
Connector Color	**Gray/Black**			
Test Adapter No.	**(M) J-35616-2A/ J-35616-64B**		**(F) J-35616-3/ J-35616-65B**	
	Male		**Female**	
Pin	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	GRN/BLK	H-66 (1)	GRN/BLK	H-81 (5)
2	GRN/WHT	H-66 (8)	GRN/WHT	H-81 3)
3	GRN	H-66 (2)	GRN	H-81 (17)
				ECM
				EHCU
4	BLU/ORN	H-105 (H)	BLU/ORN	Diode2
				H-90 (20)
5	GRN/RED	H-66 (5)	GRN/RED	Marker Light Relay
6	LT GRN/WHT	Fuel Tank Unit (In)	LT GRN/WHT	H-81 (10)/H-173 (9)
7	BLU/YEL	H-105 (D)	BLU/YEL	Diode3
				H-90 (21)
8	PNK/GRN	H-105 (B)	PNK/GRN	ECM
9	BLK/WHT	H-105 (A)	BLK/WHT	ECM
10	YEL	H-105 (F)	YEL	ECM
11	PNK/BLK	H104 (F)	PNK/BLK	ECM
12	RED/GRN	H104 (B)	RED/YEL	ECM
13	WHT/BLU	H-241 (2)	WHT/BLU	EHCU

13	WHT/BLU	H-241 (2)	WHT/BLU	EHCU
14	ORN/BLU	H-241 (1)	ORN/BLU	EHCU
15	WHT	H-241 (2)	WHT	EHCU
16	VIO	H-241 (1)	VIO	EHCU
17	RED/YEL	H-104 (J)	RED/GRN	ECM
18	RED/BLK	H-104 (K)	RED/BLK	ECM
19	BRN	H-104 (E)	BRN/ORN	ECM
20	GRY/RED	H-104 (D)	GRY/RED	H-52 (9)
21	RED/BLU	H-104 (C)	RED/BLU	H-52 (10)
22	—	Not Used	—	Not Used
23	BLU	H-105 (E)	BLU	ECM
24	BLU/RED	H-105(G)	BLU/RED	ECM
25	BLK	Body Earth 20 J-110	BLK	W/S-4
26	BLK	W/S-6	BLK	W/S-4
27	RED	Rear Manufacture Connector	RED	Fuse RR Dome Light (15A)
28	RED/BLU	H-66 (6)	RED/BLU	H-88 (5)
				Inhibitor Switch
29	LT GRN/BLK	Rear Manufacture Connector	LT GRN/BLK	Marker Light Relay
30	PNK	H-105 (C)	PNK	H-90 (13)
31	RED/BLK	H-104 (A)	RED/BLK	H-81 (20)
32	—	Not Used	—	Not Used



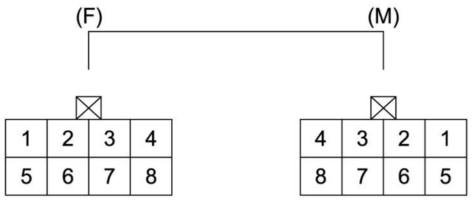
LNW78DSH004601

Connector No.	H-104			
Connector Color	Black			
Test Adapter No.	(M) J-35616-12		(F) J-35616-13	
	Male		Female	
Pin	Wire Color	Pin Function	Wire Color	Pin Function
A	—	—	RED/ BLK	H-101(31)
B	—	—	RED/GRN	H-101(12)
C	—	—	RED/BLU	H-101(21)
D	—	—	GRY/RED	H-101(20)
E	—	—	BRN	H-101(19)
F	—	—	PNK/BLK	H-101(11)
G	—	—	—	Not Used
H	—	—	BLK	W/S-6
J	—	—	RED/YEL	H-101(17)
K	—	—	RED/BLK	H-101(18)



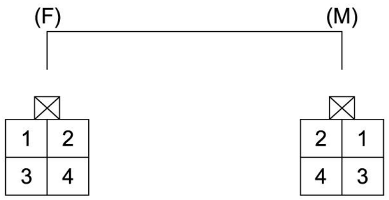
LNW78DSH004701

Connector No.	H-105			
Connector Color	Black			
Test Adapter No.	(M) J-35616-12		(F) J-35616-13	
	Male		Female	
Pin	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
A	—	—	BLK/WHT	H-101(9)
B	—	—	PNK/GRN	H-101(8)
C	—	—	PNK	H-101(30)
D	—	—	BLU/YEL	H-101(7)
E	—	—	BLU	H-101(23)
F	—	—	YEL	H-101(10)
G	—	—	BLU/RED	H-101(24)
H	—	—	BLU/ORN	H-101(4)



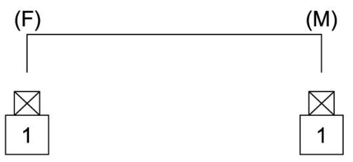
LNW78DSH000601

Connector No.	**H-168**			
Connector Color	**Black**			
Test Adapter No.	**(M) J-35616-18**		**(F) J-35616-19**	
	Male		**Female**	
Pin	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	RED/BLK	Boost Pressure Sensor	RED/BLK	ECM
2	BLU	Boost Pressure Sensor	BLU	ECM
3	GRN	Boost Pressure Sensor	GRN	ECM
4	YEL	Boost Pressure Sensor	YEL	ECM
5	BLK	Shield Line	BLK	Shield Line
6	ORN	Fuel Rail Pressure (FRP) Sensor	ORN	ECM
7	ORN/BLU	Fuel Rail Pressure (FRP) Sensor	ORN/BLU	ECM
8	BLU/GRN	Fuel Rail Pressure (FRP) Sensor	BLU/GRN	ECM



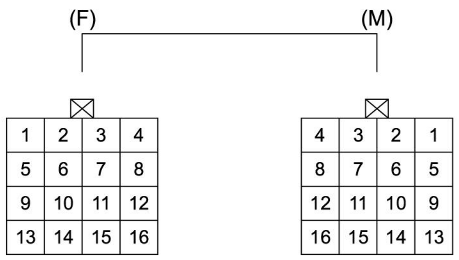
LNW78DSH001101

Connector No.	H-169			
Connector Color	Light Gray			
Test Adapter No.	(M) J-35616-40		(F) J-35616-41	
	Male		Female	
Pin	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	RED	Glow Plug Control Module	RED	Glow Plug Cylinder No.1
2	GRN	Glow Plug Control Module	GRN	Glow Plug Cylinder No.2
3	PNK	Glow Plug Control Module	PNK	Glow Plug Cylinder No.3
4	BLU	Glow Plug Control Module	BLU	Glow Plug Cylinder No.4



LNWA8DSH000601

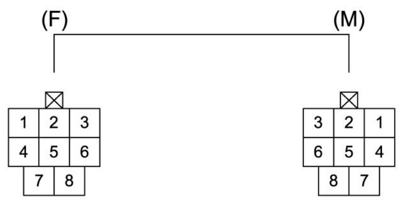
Connector No.	**H-170**			
Connector Color	**Gray**			
Test Adapter No.	**(M) J-35616-44**		**(F) J-35616-45**	
	Male		**Female**	
Pin	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	RED/ GRN	Relay Box FL-14 ETB	RED/ GRN	Up Filter Install (ETB)



LNW78DSH000401

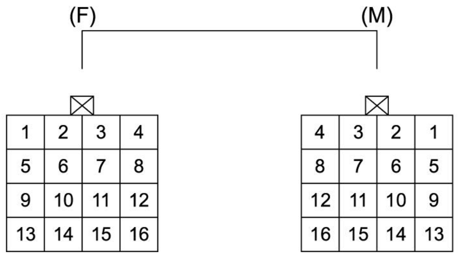
Connector No.	**H-171**			
Connector Color	**Black**			
Test Adapter No.	**(M) J-35616-18**		**(F) J-35616-19**	
	Male		**Female**	
Pin	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	RED/BLU	Diesel Exhaust Fluid (DEF) Control Module	RED/BLU	Diesel Exhaust Fluid (DEF) Pump
2	WHT/BLK	Diesel Exhaust Fluid (DEF) Control Module	WHT/BLK	Diesel Exhaust Fluid (DEF) Pump
3	GRY	Diesel Exhaust Fluid (DEF) Control Module	GRY	Diesel Exhaust Fluid (DEF) Pump
4	RED	Diesel Exhaust Fluid (DEF) Control Module	RED	Diesel Exhaust Fluid (DEF) Pump
5	LT GRN	Diesel Exhaust Fluid (DEF) Control Module	LT GRN	Diesel Exhaust Fluid (DEF) Pump
6	WHT/BLU	Diesel Exhaust Fluid (DEF) Control Module	WHT/BLU	Diesel Exhaust Fluid (DEF) Pump
7	VIO/YEL	Diesel Exhaust Fluid (DEF) Control Module	VIO/YEL	Diesel Exhaust Fluid (DEF) Pump
8	PNK	Diesel Exhaust Fluid (DEF) Control Module	PNK	Diesel Exhaust Fluid (DEF) Pump
9	BLU/WHT	Diesel Exhaust Fluid (DEF) Control Module	BLU/WHT	Diesel Exhaust Fluid (DEF) Tank Level and Temperature Sensor
10	BLU/WHT	NOx Sensor 2	BLU/WHT	Diesel Exhaust Fluid (DEF) Tank Level and Temperature Sensor
11	BLU/ORN	NOx & Diesel Exhaust Fluid (DEF) Sensor Relay H-173 (4)	BLU/WHT	Diesel Exhaust Fluid (DEF) Tank Level and Temperature Sensor

		H-175 (4) H-176 (3)		
12	BLK	Earth Body SCR 2	PNK/WHT	Diesel Exhaust Fluid (DEF) Tank Level and Temperature Sensor
13	BLU	NOx Sensor 2	BLU	Diesel Exhaust Fluid (DEF) Tank Level and Temperature Sensor
14	BLU	Diesel Exhaust Fluid (DEF) Control Module	BLU	Diesel Exhaust Fluid (DEF) Tank Level and Temperature Sensor
15	RED/WHT	Heater Valve Relay	RED/WHT	Diesel Exhaust Fluid (DEF) Tank Heater Coolant Control Valve
16	BLK	Earth Body SCR 2	BLK	Diesel Exhaust Fluid (DEF) Tank Heater Coolant Control Valve



LNWA8DSH000501

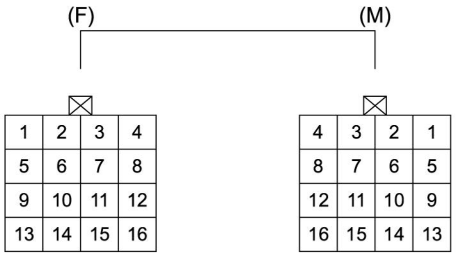
Connector No.	H-172			
Connector Color	Black			
Test Adapter No.	(M)J-35616-42		(F) J-35616-43	
	Male		Female	
Pin	Wire Color	Pin Function	Wire Color	Pin Function
1	GRN	H-81(17)	—	—
2	GRN/RED	Maker Light Relay	—	—
3	GRN/BLK	H-81(5)	—	—
4	GRN/WHT	H-81(3)	—	—
5	BLK	W/S-4	—	—
6	—	Not Used	—	—
7	—	Not Used	—	—
8	RED/WHT	Relay Box Fuse FL-16 Towing Converter	—	—



LNW78DSH000401

Connector No.	**H-173**			
Connector Color	**Black**			
Test Adapter No.	**(M) J-35616-18**		**(F) J-35616-19**	
	Male		**Female**	
Pin	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	VIO/WHT	Exhaust Differential Pressure Sensor	VIO/WHT	ECM
2	GRN/YEL	Exhaust Differential Pressure Sensor	GRN/YEL	ECM
3	WHT/ORN	Exhaust Differential Pressure Sensor	WHT/ORN	ECM
4	BLK/ORN	NOx Sensor 1	BLK/ORN	NOx & Diesel Exhaust Fluid (DEF) Sensor Relay
				H-171 (11)
				H-176 (3)
5	BLK	NOx Sensor 1	BLK	H-176 (4)
				Earth Body SCR2
6	BLU	Resistor/NOx Sensor 1	BLU	H-176(11)
7	BLU/WHT	Resistor/NOx Sensor 1	BLU/WHT	H-176(12)
8	—	Not Used	—	Not Used
9	VIO/YEL	Exhaust Gas Temperature Sensor 1	VIO/YEL	ECM
10	RED	Exhaust Gas Temperature Sensor 1	RED	ECM
11	VIO/GRN	Exhaust Gas Temperature Sensor 2	VIO/GRN	ECM
12	YEL/RED	Exhaust Gas Temperature Sensor 2	YEL/RED	ECM
13	—	Not Used	—	Not Used

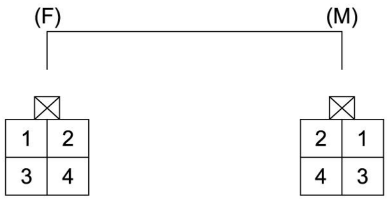
14	—	Not Used	—	Not Used
15	—	Not Used	—	Not Used
16	—	Not Used	—	Not Used



LNW78DSH000401

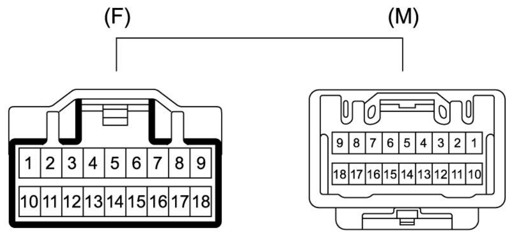
Connector No.	**H-176**			
Connector Color	**Black**			
Test Adapter No.	**(M) J-35616-18**		**(F) J-35616-19**	
	Male		**Female**	
Pin	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	LT GRN/RED	Exhaust Gas Temperature (EGT) Sensor 3	LT GRN/RED	Diesel Exhaust Fluid (DEF) Control Module
2	VIO	Exhaust Gas Temperature (EGT) Sensor 3	VIO	Diesel Exhaust Fluid (DEF) Control Module
3	BLK/ORN	NOx Sensor 2	BLK/ORN	H-173 (4)
				NOx Sensor 1
				NOx & Diesel Exhaust Fluid (DEF) Sensor Relay
4	BLK	NOx Sensor 2	BLK	H-173(5)
5	RED	Diesel Exhaust Fluid (DEF) Injector	RED	Diesel Exhaust Fluid (DEF) Control Module
6	BLU	Diesel Exhaust Fluid (DEF) Injector	BLU	Diesel Exhaust Fluid (DEF) Control Module
7	BLK/BLU	PM Sensor	BLK/BLU	Fuse PM Sensor (15A)
8	BLK	PM Sensor	BLK	W/S-4
9	BLU/WHT	NOx Sensor 2	BLW/WHT	Diesel Exhaust Fluid (DEF) Control Module
		H-171 (10)		
10	BLU	NOx Sensor 2	BLU	Diesel Exhaust Fluid (DEF) Control Module
		H-171 (13)		

11	BLU	NOx Sensor 2	BLU	H-173 (6)
		H-171 (13)		
12	BLU/WHT	NOx Sensor 2	BLU/WHT	H-173 (7)
		H-171 (10)		
13	GRN/WHT	PM Sensor	GRN/WHT	Diesel Exhaust Fluid (DEF) Control Module
		H-176 (15)		H-91 (2)
14	GRN	PM Sensor	GRN	Diesel Exhaust Fluid (DEF) Control Module
		H-176 (16)		H-91 (13)
15	GRN/WHT	PM Sensor	GRN/WHT	ECM
		H-176 (13)		
16	GRN	PM Sensor	GRN	ECM
		H-176 (14)		



LNW78DSH001101

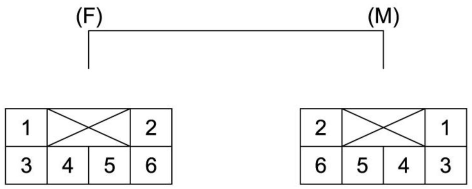
Connector No.	**H-177**			
Connector Color	**Black**			
Test Adapter No.	**(M) J-35616-18**		**(F) J-35616-19**	
	Male		**Female**	
Pin	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	BLK/GRN	H-88 (1)	BLK/GRN	Transmission Fluid Temperature (TFT) Sensor -Torque Converter Clutch
2	WHT	H-88 (3) Transmission Fluid Temperature (TFT) Sensor Valve Body	WHT	Transmission Fluid Temperature (TFT) Sensor -Torque Converter Clutch
3	WHT/RED	H-91 (15)	WHT/RED	Input Shaft Speed (ISS) Sensor
4	BLK/RED	H-91 (4)	BLU/WHT	Input Shaft Speed (ISS) Sensor



LNWE8DSH000101

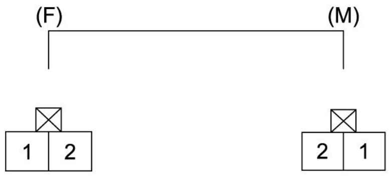
Connector No.	H-195			
Connector Color	White			
Test Adapter No.	(M) J-35616-18		(F) J-35616-19	
	Male		Female	
Pin	Wire Color	Pin Function	Wire Color	Pin Function
1	—	Not Used	—	Not Used
2	—	Not Used	—	Not Used
3	BLU	J/C 10P ADD3 B-519 (3)	RED	J/C FMS-B B-452 (1)
4	—	Not Used	LT GRN	Analog Tachograph A(9)
5	BLK	Cab Junction Block 1 B-16 (5)	BLK	J/C FMS-E B-453 (1)
6	BLU	CAN Joint FMS-L(3)	BLU	FMS CAN Interface Control Unit (23)
7	—	Not Used	—	Not Used
8	—	Not Used	—	Not Used
9	—	Not Used	—	Not Used
10	—	Not Used	—	Not Used
11	—	Not Used	—	Not Used
12	—	Not Used	YEL/RED	Analog Tachograph (20)
13	GRN	Sub Junction Block 1 B-137 (10)	GRN/YEL	J/C FMS-IG B-454 (1)
14	—	Not Used	—	Not Used
15	BLK/WHT	CAN Joint FMS-H (4)	BLK/WHT	FMS CAN Interface Control Unit (6)
16	—	Not Used	—	Not Used
17	RED	Sub Junction Block 1 B-134(1)	LT BLU	FMS CAN Interface Control Unit (3)

17	RED	Sub Junction Block 1 B-134(1)	LT BLU	FMS CAN Interface Control Unit (3)
18	—	Not Used	—	Not Used



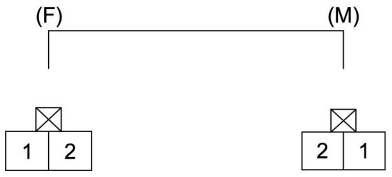
LNW78DSH000201

Connector No.	**H-234**			
Connector Color	**White**			
Test Adapter No.	**(M) J-35616-4A**		**(F) J-35616-5**	
	Male		**Female**	
Pin	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	—	—	RED	J/C FMS-B
2	—	—	GRY/YEL	J/C FMS-IG
3	—	—	—	—
4	—	—	BLK	J/C FMS-E
5	—	—	BRN	J/C CAN OUT-L
6	—	—	BRN/WHT	J/C CAN OUT-H



LNW78DSH000501

Connector No.	**H-241**			
Connector Color	**White**			
Test Adapter No.	**(M) J-35616-18**		**(F) J-35616-19**	
	Male		**Female**	
Pin	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	ORN/BLU	H-101 (14)	WHT	Wheel Speed Sensor Rear Left
2	WHT/BLU	H-101 (13)	BLK	Wheel Speed Sensor Rear Left



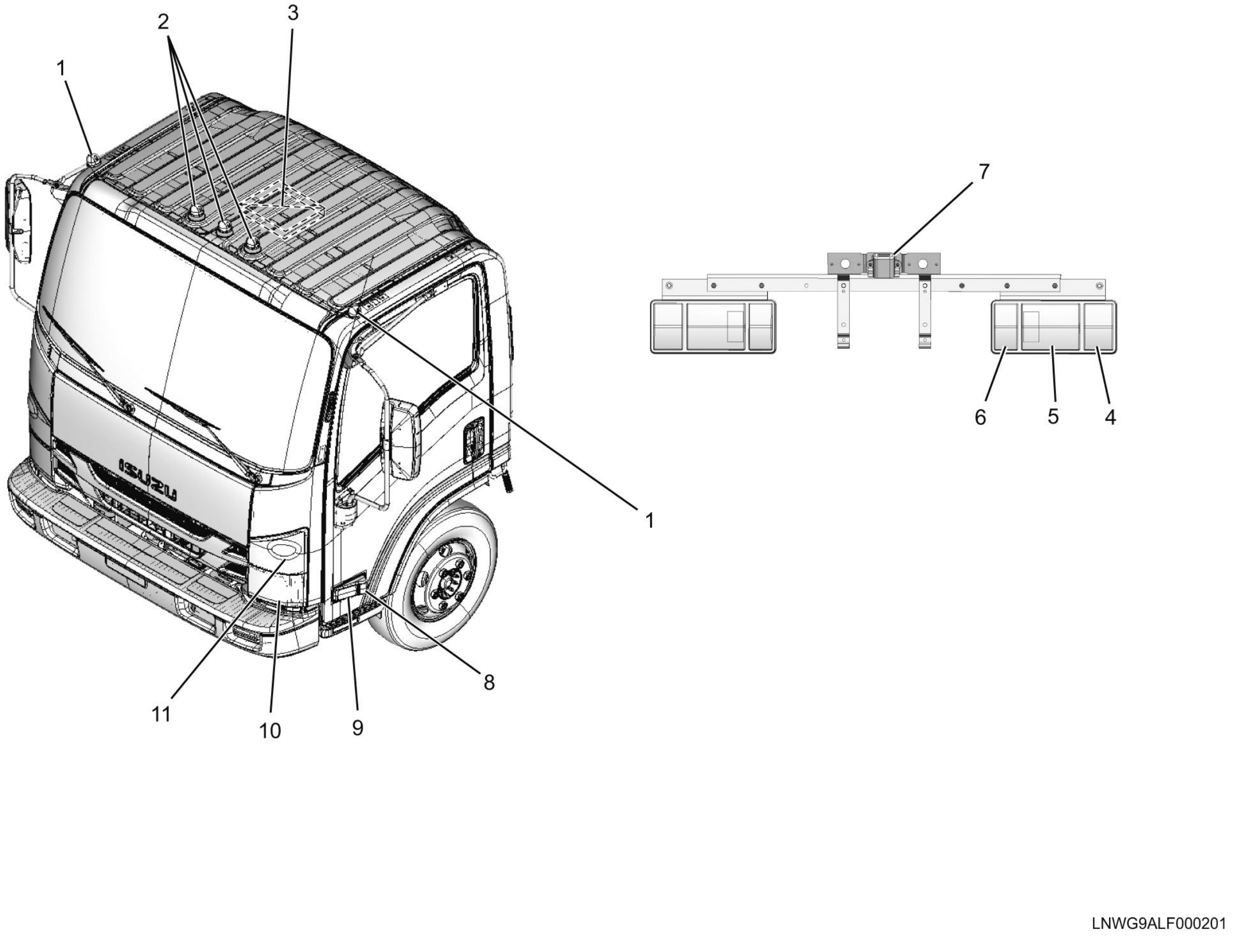
LNW78DSH000501

Connector No.	**H-242**			
Connector Color	**(M) Black**		**(F) White**	
Test Adapter No.	**(M) J-35616-18**		**(F) J-35616-19**	
	Male		**Female**	
Pin	**Wire Color**	**Pin Function**	**Wire Color**	**Pin Function**
1	VIO	H-101 (16)	WHT	Wheel Speed Sensor Rear Right
2	WHT	H-101 (15)	BLK	Wheel Speed Sensor Rear Right

Component Locator

Bulb Usage Chart

Bulb Specifications (Under Creation)

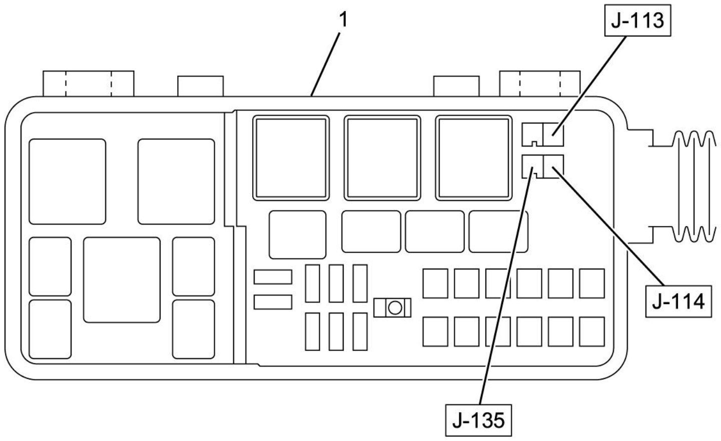


Note: Do not grip the clearance lights and the identification lights to prevent damage or water leakage.

Light Name		Rated Power	Number of Bulb	Lens Color
Headlight	Rectangular Type	60W/55W	2	Clear
Parking Light		5W	2	Clear
Front Turn Signal Light		27W	2	Clear
Cornering Light		27W	2	Clear
Side Turn Signal Light		5W	2	Clear
Side Maker Light		5W	2	Clear
Rear Combination Light	Brake Light, Taillight	27W/8W	2	Red
	Turn Signal Light	27W	2	Amber

	Backup Light	27W	2	Clear
License Plate Light		7.5W	1	Clear
Clearance Light		5W	2	Amber
Identification Light		5W	3	Amber
Dome Light		10W	1	White
Indicator/Warning Lamp (In the Instrument Panel Cluster)	Engine Oil Pressure	LED	1	Red
	Brake Booster	LED	1	Red
	Charge	LED	1	Red
	High Beam	LED	1	Blue
	Turn Signal / Hazard Warning	LED	2	Green
	MIL	LED	1	Amber
	DRL	LED	1	Green
	ABS	LED	1	Amber
	Check Trans	LED	1	Amber
	Oil Level	LED	1	Green
	Glow	LED	1	Amber
	A/T Oil Temp	LED	1	Red
	Cruise Main	LED	1	Green
	Cruise Set	LED	1	Green
	SVS	LED	1	Amber
	Idle Stop	LED	1	Green
	Exhaust Brake	LED	1	Green
	Diesel Exhaust Fluid (DEF)	LED	1	Amber
	Engine Shut Down	LED	1	Red
Illumination and Indicator lamp	Hazard warning switch	LED	1	Red
	A/C switch	LED	1	Yellow Green
	Cruise main switch	LED	1	Yellow Green
	Oil Level Check and Miles Check Switch	LED	2	Amber
	Heater bezel	1.1W	2	Amber

Diode Location

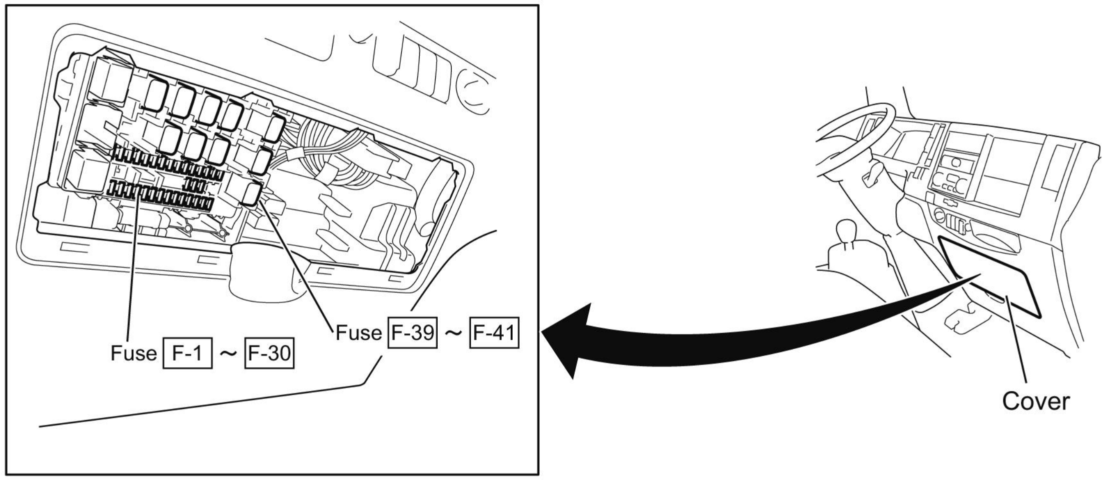


Connector No.	Usage
J-113	ECM
J-114	A/C
J-135	ECM

LNWA8DSF000101

Fuse, Fusible Link, and Slow-Blow Fuse Location

Fuse and Fuse Label



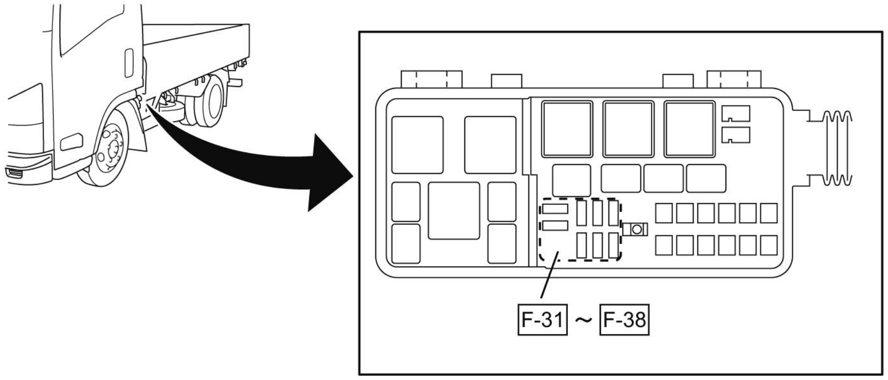
FUSE LABEL

—	—	ROOM LAMP,AUDIO	DOOR LOCK	TRAILER BRAKE	P/WINDOW	ABS	WIPER	H/LAMP LO (LH)	LAMPS (BATT)	H/LAMP LO (RH)	BRAKE LAMPS	STARTER	H/LAMP HI (LH)	H/LAMP HI (RH)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		10A	15A	15A	25A	10A	25A	10A	10A	10A	10A	10A	10A	10A

P. NO. 8981127740 SPARE SPARE SPARE SPARE

MIRROR HEATER	—	IGNITION1	—	ECM	METER	ECU (BATT)	MIRROR	AUDIO. ACC	HORN	TURN, HAZARD	TAIL LAMPS	ILLUMINATIONS	CORNERING LAMPS	AIR CONDITIONER
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
15A		10A		10A	10A	10A	10A	15A	15A	15A	10A	10A	10A	10A

D-1	20A	CIGAR
D-2	15A	ACCESSORIES SOCKET
D-3	20A	POWER SOURCE
D-4		

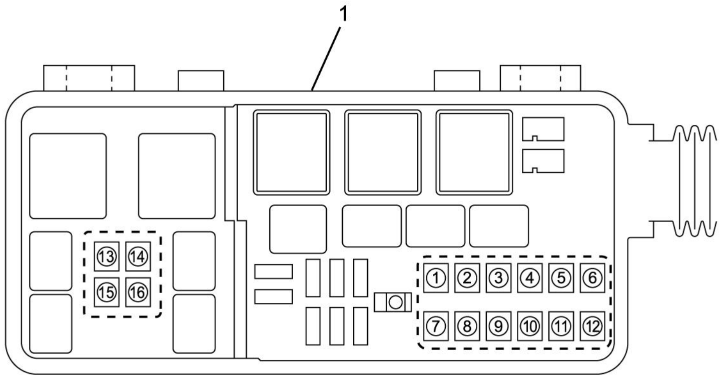


20A F-31	MARKER LAMP
20A F-32	TAIL MAIN
15A F-33	FUEL HEATER
20A F-34	SCR
15A F-35	PM SENSOR
15A F-36	RR DOME LIGHT
20A F-37	CONDENSER FAN
10A F-38	AIR CONDITIONER

LNWF80XF004901

Note: The fuse numbers (1)-(30) indicated on the fuse labels are expressed as [F-1] – [F-30] in the circuit diagrams of this manual.

Slow Blow Fuse



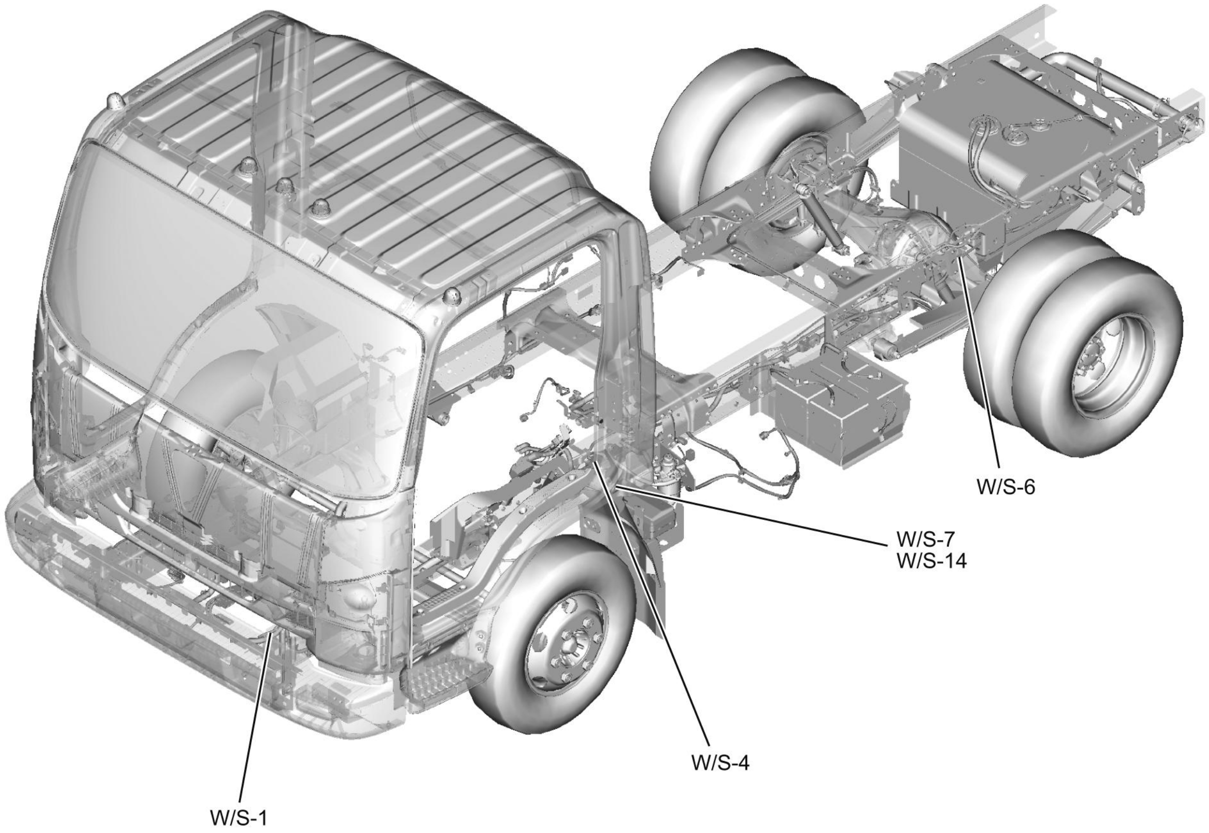
No.	SBF No.	Name	Capacity
①	FL-1	ECM	40A
②	FL-2	STARTER	60A
③	FL-3	POWER ACC	50A
④	FL-4	GLOW	60A
⑤	FL-5	STARTER SWITCH 2	40A
⑥	FL-6	STARTER SWITCH 1	30A
⑦	FL-7	HVAC	40A
⑧	FL-8	HEADLIGHT	30A
⑨	FL-9	RR DOME LIGHT	30A
⑩	FL-10	WIPER	50A
⑪	FL-11	ABS	60A
⑫	FL-12	JUNCTION BLOCK	50A
⑬	FL-13	—	—
⑭	FL-14	ETB	30A
⑮	FL-15	—	—
⑯	FL-16	TOWING CONVERTER	30A

LNWE80MF000101

Note: The slow blow fuse numbers (1)-(12) indicated on the fuse labels are expressed as [FL-1] – [FL-12] in the circuit diagrams of this manual.

Joint Connection and Weld Splice Location

Frame Cable Harness



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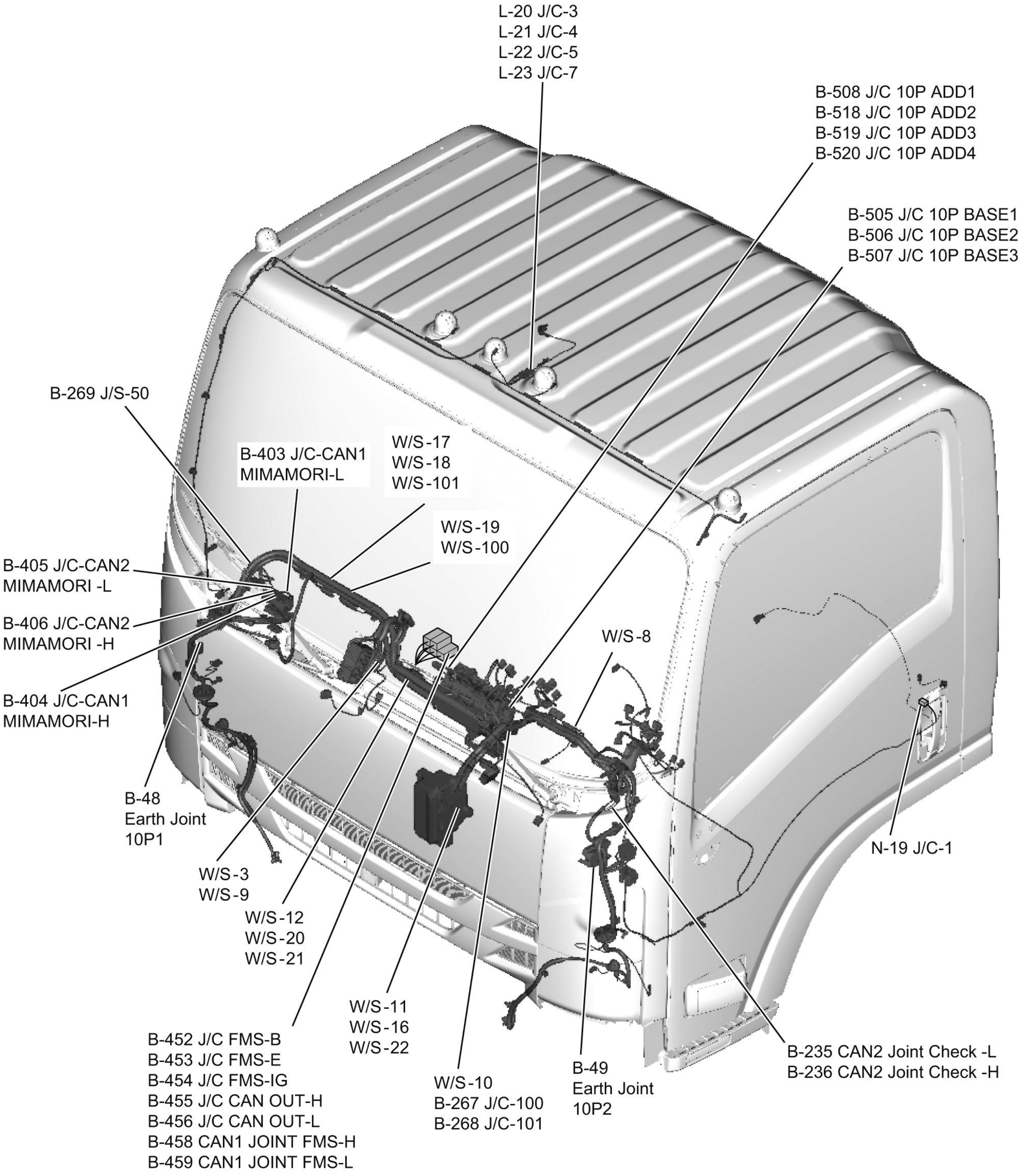
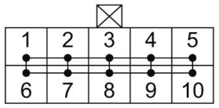
Body Cable Harness


L-20 J/C-3
L-21 J/C-4
L-22 J/C-5
L-23 J/C-7
B-508 J/C 10P ADD1
B-518 J/C 10P ADD2
B-519 J/C 10P ADD3
B-520 J/C 10P ADD4
B-505 J/C 10P BASE1
B-506 J/C 10P BASE2
B-507 J/C 10P BASE3
B-269 J/S-50
B-403 J/C-CAN1
MIMAMORI-L
W/S-17
W/S-18
W/S-101
W/S-19
W/S-100
B-405 J/C-CAN2
MIMAMORI -L
B-406 J/C-CAN2
MIMAMORI -H
W/S-8
B-404 J/C-CAN1
MIMAMORI-H
B-48
Earth Joint
10P1
N-19 J/C-1
W/S-3
W/S-9
W/S-12
W/S-20
W/S-21
W/S-11
W/S-16
W/S-22
B-452 J/C FMS-B
B-453 J/C FMS-E
B-454 J/C FMS-IG
B-455 J/C CAN OUT-H
B-456 J/C CAN OUT-L
B-458 CAN1 JOINT FMS-H
B-459 CAN1 JOINT FMS-L
W/S-10
B-267 J/C-100
B-268 J/C-101
B-49
Earth Joint
10P2
B-235 CAN2 Joint Check -L
B-236 CAN2 Joint Check -H

LNWH80XF000101

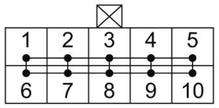
Joint Connection Circuit

B-48 Joint Connection 10P1



Joint Point	Terminal No.	Connection
●	1	DRL Control Unit
●	2	Heater Mirror RH Ground
●	3	Ext ETB-4
●	4	Joint Connection 10P2
●	5	—
●	6	WIS-13
●	7	—
●	8	—
●	9	Headlight RH Ground
●	10	Body Ground

B-49 Joint Connection 10P2



Joint Point	Terminal No.	Connection
●	1	Power Window Driver Switch Ground
●	2	—
●	3	WIS-16
●	4	Illumination Control Switch
●	5	Body Ground
●	6	Headlight LH Ground
●	7	Vacuum Pump Ground
●	8	Heater Mirror LH Ground
●	9	WIS-11
●	10	Joint Connection 10P1

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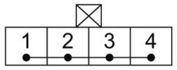
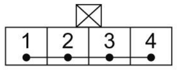
B-235 CAN2 Joint Check -L



Joint Point	Terminal No.	Connection
●	1	Diesel Exhaust Fluid (DEF) Control Module
●	2	-
●	3	J/C-CAN 2 MIMAMORI -L
●	4	Data Link Connector

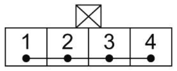
B-236 CAN2 Joint Check -H



Joint Point	Terminal No.	Connection
●	1	Diesel Exhaust Fluid (DEF) Control Module
●	2	-
●	3	J/C-CAN 2 MIMAMORI -H
●	4	Data Link Connector

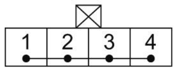
LNWG80XF010201

B-267 Joint Connection
100



Joint Point	Terminal No.	Connection
●	1	OPEN
●	2	ECM
●	3	OPEN
●	4	Accelerator Pedal Position Sensor

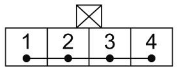
B-268 Joint Connection
101



Joint Point	Terminal No.	Connection
●	1	OPEN
●	2	ECM
●	3	OPEN
●	4	Accelerator Pedal Position Sensor

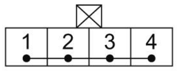
LNWF80MF000401

L-20 Joint Connection 3



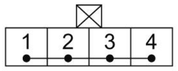
Joint Point	Terminal No.	Connection
●	1	ID 3
●	2	ID 2
●	3	Marker 1
●	4	Joint Connection 7

L-21 Joint Connection 4



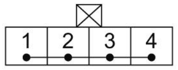
Joint Point	Terminal No.	Connection
●	1	ID 3
●	2	ID 2
●	3	Marker 1
●	4	Joint Connection 5

L-22 Joint Connection 5



Joint Point	Terminal No.	Connection
●	1	ID 1
●	2	Marker 2
●	3	Joint Connection 4
●	4	H-45 (6)

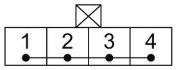
L-23 Joint Connection 7



Joint Point	Terminal No.	Connection
●	1	ID 1
●	2	Marker 2
●	3	Joint Connection 3
●	4	H-45 (4)

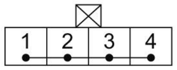
LNWH80XF000801

B-269 Joint Connection 50



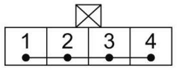
Joint Point	Terminal No.	Connection
●	1	Automatic Transmission
●	2	TCM
●	3	Automatic Transmission
●	4	—

B-452 J/C FMS-B



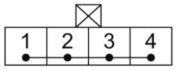
Joint Point	Terminal No.	Connection
●	1	Cab Junction Block 1
●	2	EXT Telematics
●	3	–
●	4	FMS CAN Interface Control Unit

B-453 J/C FMS-E



Joint Point	Terminal No.	Connection
●	1	J/C 10P ADD 3
●	2	EXT Telematics
●	3	–
●	4	FMS CAN Interface Control Unit

B-454 J/C FMS-IG



Joint Point	Terminal No.	Connection
●	1	Sub Junction Block 1
●	2	FMS CAN Interface Control Unit
●	3	–
●	4	EXT Telematics

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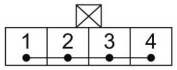
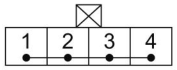
B-403 J/C-CAN 1
MIMAMORI - L



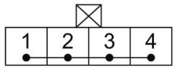
Joint Point	Terminal No.	Connection
●	1	MIMAMORI Control Unit
●	2	CAN Joint-FMS-L
●	3	TCM
●	4	Instrument Panel (IP) Cluster

B-404 J/C-CAN 1
MIMAMORI - H



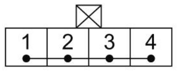
Joint Point	Terminal No.	Connection
●	1	MIMAMORI Control Unit
●	2	CAN Joint-FMS-H
●	3	TCM
●	4	Instrument Panel (IP) Cluster

B-405 J/C-CAN 2
MIMAMORI - L



Joint Point	Terminal No.	Connection
●	1	CAN 2 Joint Check -L
●	2	-
●	3	TCM
●	4	MIMAMORI Control Unit

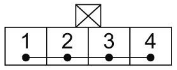
B-406 J/C-CAN 2
MIMAMORI - H



Joint Point	Terminal No.	Connection
●	1	CAN 2 Joint Check -H
●	2	-
●	3	TCM
●	4	MIMAMORI Control Unit

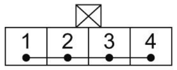
LNWG80XF005701

B-455 J/C CAN OUT-L



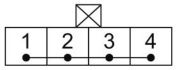
Joint Point	Terminal No.	Connection
●	1	FMS CAN Interface Control Unit
●	2	Terminator
●	3	–
●	4	EXT Telematics

B-456 J/C CAN OUT-H



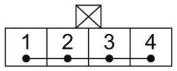
Joint Point	Terminal No.	Connection
●	1	FMS CAN Interface Control Unit
●	2	Terminator
●	3	–
●	4	EXT Telematics

B-458 CAN1 Joint-FMS-H



Joint Point	Terminal No.	Connection
●	1	EHCU
●	2	–
●	3	J/C-CAN1 MIMAMORI -H
●	4	FMS CAN Interface Control Unit

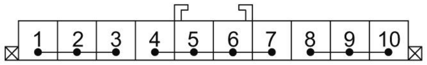
B-459 CAN1 Joint-FMS-L



Joint Point	Terminal No.	Connection
●	1	–
●	2	EHCU
●	3	FMS CAN Interface Control Unit
●	4	J/C-CAN1 MIMAMORI -L

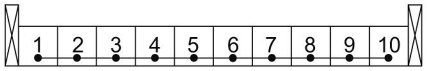
LNWH80XF013501

B-505 J/C 10P BASE 1



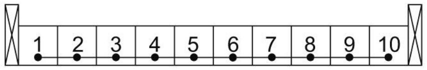
Joint Point	Terminal No.	Connection
●	1	-
●	2	-
●	3	-
●	4	Inst H.~Roof H.
●	5	Cab J/B1.J
●	6	Inst H.~Roof H.
●	7	Audio
●	8	Intermittent Relay
●	9	Wiper & Exhaust Brake SW
●	10	Cab J/B1.J

B-506 J/C 10P BASE 2



Joint Point	Terminal No.	Connection
●	1	Cab J/B1.J
●	2	Accessory Power Relay
●	3	IP Cluster.A
●	4	Blower Resistor
●	5	Sub J/B1.E
●	6	Intermittent Relay
●	7	Inst H.~Door(RH) H.
●	8	Inst H.~Roof H.
●	9	Stoplight Switch
●	10	WIS-18

B-507 J/C 10P BASE 3



Joint Point	Terminal No.	Connection
●	1	WIS-18
●	2	Combination Switch
●	3	-
●	4	Audio
●	5	Combination Switch
●	6	Hazard Switch
●	7	Inst H.~Door(LH) H.
●	8	Brake Fluid Level Switch
●	9	Combination Switch
●	10	Wiper & Exhaust Brake SW

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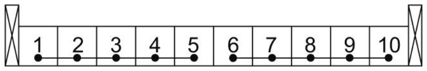
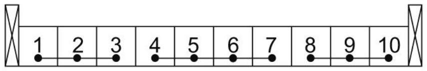
B-508 J/C 10P ADD 1



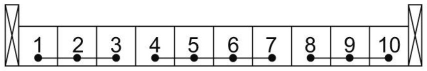
Joint Point	Terminal No.	Connection
●	1	Door Lock Relay
●	2	Front Door Lock Motor LH
●	3	Front Door Lock Motor RH
●	4	-
●	5	-
●	6	Door Lock Relay
●	7	Front Door Lock Motor LH
●	8	Front Door Lock Motor RH
●	9	-
●	10	-

B-518 J/C 10P ADD 2



Joint Point	Terminal No.	Connection
●	1	Door Lock Relay
●	2	Door Lock Switch
●	3	Keyless Entry Control Unit
●	4	Diode Door Lock
●	5	Door Lock Relay
●	6	Door Lock Switch
●	7	Keyless Entry Control Unit
●	8	Cab J/B1.F
●	9	Door Lock Relay
●	10	Keyless Entry Control Unit

B-519 J/C 10P ADD 3



Joint Point	Terminal No.	Connection
●	1	Cab J/B1.A
●	2	Data Link Connector
●	3	J/C FMS-B
●	4	Magnetic Clutch Relay
●	5	Cab J/B1.A
●	6	A/C Switch
●	7	Defroster Switch
●	8	Mirror Heater Switch
●	9	Mirror Heater Switch
●	10	Mirror Heater

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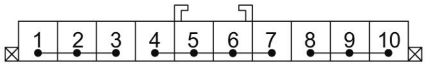
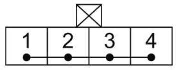
B-520 J/C 10P ADD 4



Joint Point	Terminal No.	Connection
●	1	Sub Junction Block 1. G
●	2	TCM
●	3	Shift Lever
●	4	PTO Switch 2
●	5	PTO Switch 2
●	6	PTO Engine Speed Control Switch
●	7	Inst H.~Frame Frt H.
●	8	Inst H.~Frame Frt H.
●	9	Diode 7
●	10	Vacuum Tank Switch

N-19 J/C-1



Joint Point	Terminal No.	Connection
●	1	W/S-11
●	2	Overdrive OFF Switch
●	3	Seat Belt Switch
●	4	Shift Lever

LNWH80XF000401

Reference Table of Weld Splice

Connector No.	Usage
W/S-1	Diesel Exhaust Fluid (DEF) Control Module
	Diesel Exhaust Fluid (DEF) Control Module

	Diesel Exhaust Fluid (DEF) Control Module
	Diesel Exhaust Fluid (DEF) Control Module
	Earth Body SCR 1
W/S-3	Blower Motor
	Blower Resistor
	Fan Control Switch
W/S-4	Earth Body 11
	Earth Body 20
	Towing Converter
	Condenser Fan Motor
	Fuel Heater
	Triple Pressure Switch
	Inhibitor Switch
	Air Cleaner Switch
	W/S-6
	PM Sensor
W/S-6	Body Earth 14
	Rear Combination Light (RH)
	To PTO 2 (Set Speed Switch)
	Back Buzzer (Upfitter Install)
	W/S-4
W/S-7	—
	Body Earth 4
	ECM
	ECM
	ECM
	ECM
	ECM
	Fuel Heater Relay
	Marker Light Relay

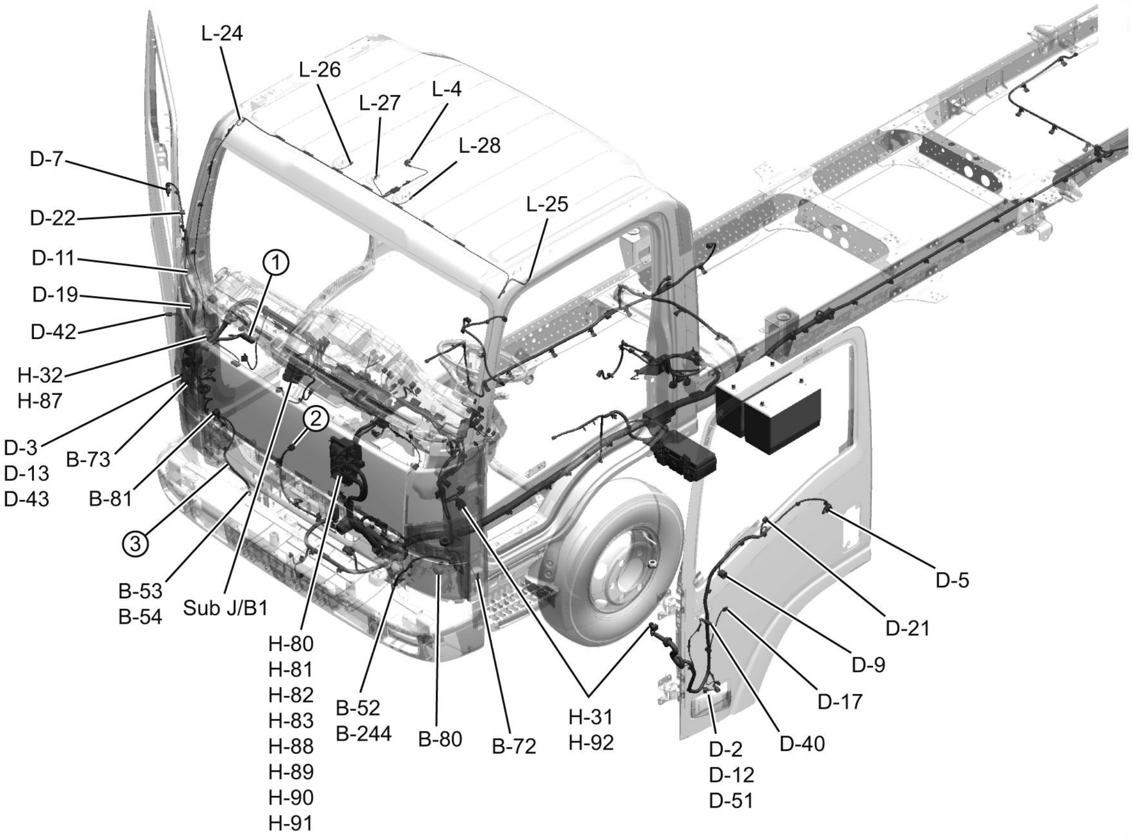
	Diode1
W/S-8	Slow Blow Fuse 5
	Ignition Switch
	Slow Blow Fuse 5
W/S-9	Cab Junction Block 1.P (Fuse 30)
	Blower Relay
	Blower Motor
W/S-10	Cigarette Lighter Relay
	Cab Junction Block 1.P (Fuse 3)
	Slow Blow Fuse 12
W/S-11	Door Lock Motor LH
	Door Lock Switch
	Mirror Heater Switch
	Front Turn Light LH
	Front Position Light LH
	Cab J/B1.C
	Cab J/B1.G
	OverDrive Off Switch
W/S-12	Cab Junction Block 1.A (Fuse 1)
W/S-13	TCM
	TCM
	Inst H. ~ Door (RH) H.
	Door Lock Relay
	Door Lock Relay
	Keyless Entry Control Unit
	MIMAMORI C/U
	Front Position Light (RH)
	Front Turn Light (RH)
W/S-14	ECM
	ECM

	ECM
	ECM
	ECM
	ECM
W/S-16	PTO Switch 2
	Pressure Switch
	Electronic Thermostat
	Side Marker LH
	A/C Switch
	Data Link Connector
	RS232C Ch1
W/S-17	Body Earth 15
	Body Earth 9
	Front Wiper Motor
	Fan Control Switch
W/S-18	Body Earth 22
	Body Earth 21
	J/C 10P BASE 2
	J/C 10P BASE 3
	ACC Socket B
	Cigarette Lighter B
W/S-19	Cigarette Lighter A
	Fuse 39
	Magnetic Clutch Relay
W/S-20	Headlight (LH)
	DRL Control Unit B
	Cab Junction Block 1.B (Fuse 9)
W/S-21	Headlight (RH)
	DRL Control Unit B
	Cab Junction Block 1.F (Fuse 11)

W/S-22	Mimamori C/U B-402 (17)
	Shift Lever N-16 (4)
	Rear Body Switch B-282 (2)
	Cab J/B1.K B-23 (4)
W/S-25	Relay Box
	Cub Junction Block 1.P
	Cub Junction Block 1.M
W/S-100	Front Wiper Motor
	Intermittent Relay
	Cab Junction Block 1.E (Wiper Main Relay)
W/S-101	Front Wiper Motor
	Front Washer Motor
	Cab Junction Block 1.E (Wiper Main Relay)

Parts Location

The parts location shows the location of the parts (1) and the connector (2) used in each harness routing (3).

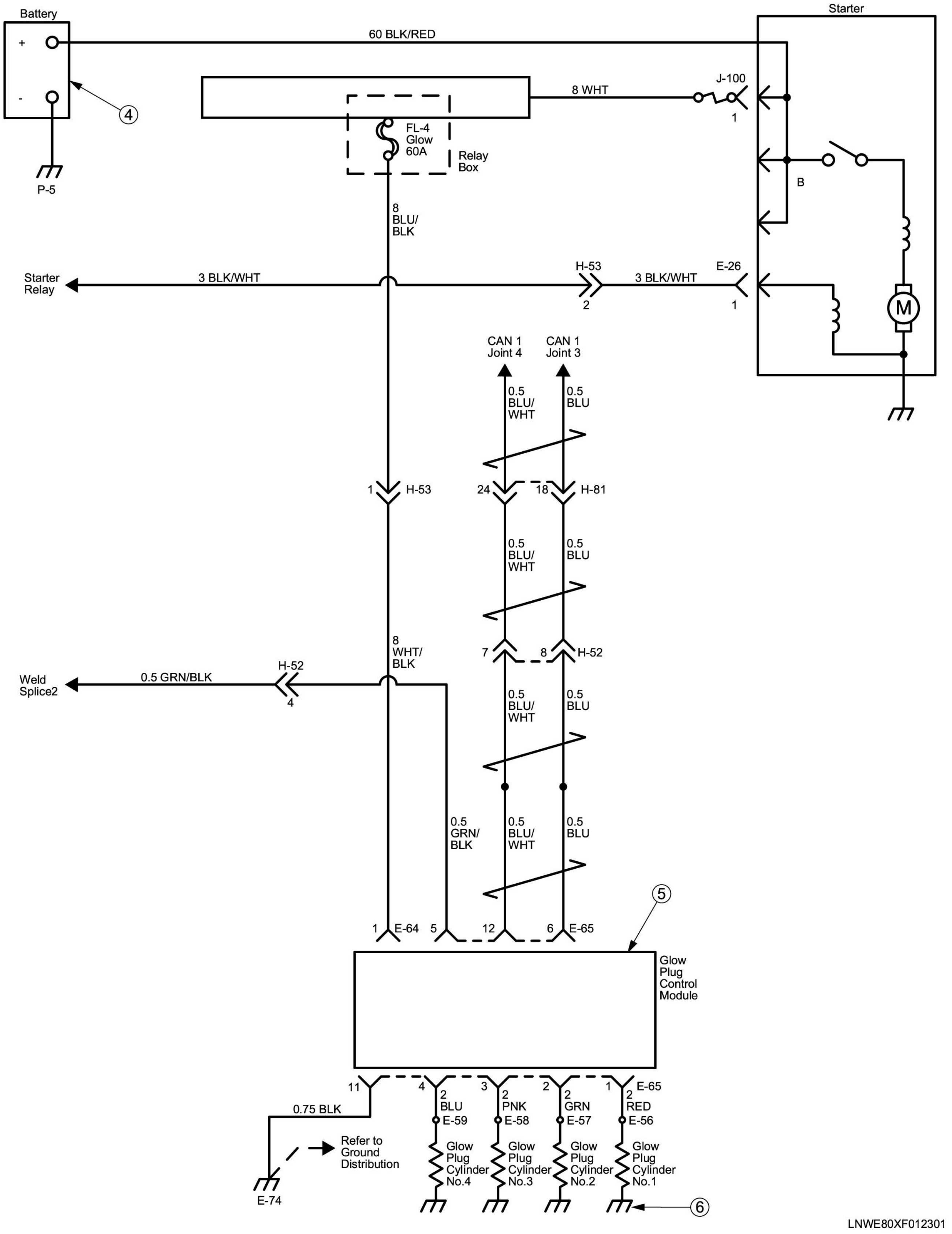


L-24
L-26
L-27
L-4
L-28
L-25
D-7
D-22
D-11
D-19
D-42
H-32
H-87
D-3
D-13
D-43
B-73
B-81
①
②
③
B-53
B-54
Sub J/B1
H-80
H-81
H-82
H-83
H-88
H-89
H-90
H-91
B-52
B-244
B-80
B-72
H-31
H-92
D-2
D-12
D-51
D-40
D-17
D-9
D-21
D-5

LNWG80MF000301

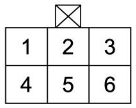
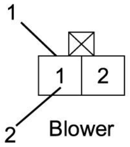
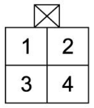
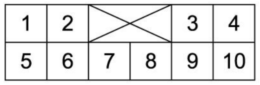
Circuit Diagram

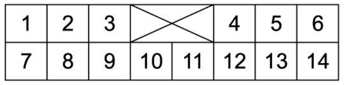
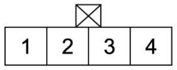
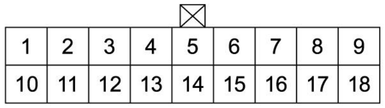
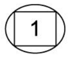
The circuit diagram shows the power supply (4) the load or loads (5) and the grounding point(s) (6).


Battery
+
-
④
P-5
60 BLK/RED
Starter
8 WHT
J-100
1
FL-4
Glow
60A
Relay
Box
B
8
BLU/
BLK
Starter
Relay
3 BLK/WHT
H-53
2
3 BLK/WHT
E-26
1
M
CAN 1
Joint 4
CAN 1
Joint 3
0.5
BLU/
WHT
0.5
BLU
1
H-53
24
18
H-81
0.5
BLU/
WHT
0.5
BLU
8
WHT/
BLK
7
8
H-52
Weld
Splice2
0.5 GRN/BLK
H-52
4
0.5
BLU/
WHT
0.5
BLU
0.5
GRN/
BLK
0.5
BLU/
WHT
0.5
BLU
⑤
1
E-64
5
12
6
E-65
Glow
Plug
Control
Module
11
4
3
2
1
E-65
0.75 BLK
2
BLU
E-59
2
PNK
E-58
2
GRN
E-57
2
RED
E-56
Refer to
Ground
Distribution
E-74
Glow
Plug
Cylinder
No.4
Glow
Plug
Cylinder
No.3
Glow
Plug
Cylinder
No.2
Glow
Plug
Cylinder
No.1
⑥
LNWE80XF012301

Connector List

The connector list shows each connector's configuration (1) and the pin number (2).

No.	Connector Face
B-5 (Gray)	 Accel Sensor 006-115
B-12 (White)	 Blower 002-267
B-13 (White)	 Blower Resistor 004-129
B-15 (Blue)	 1 2 3 4 5 6 7 8 9 10 Cab J/B 1 A 010-062

No.	Connector Face
B-20 (White)	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 Cab J/B 1 G 014-026
B-28 (White)	 Cani Joint 4 004-128
B-35 (White)	 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Combination SW 018-024
B-55	 Body Earth 000-049

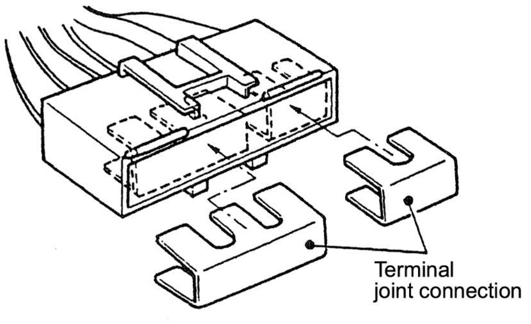
LNWA8DLF000301

Connector Symbol

Connector Symbol	Harness name	Connector Symbol	Harness name
B	Body (Inst.) Harness	L	Dome Light Harness
D	Door Harness	N	Floor Harness (LH & RH)
E	Engine Harness	P	Battery Harness
H	For joint between harnesses	X	Body & frame front harness
J	Frame front & frame rear harness		

Joint Connection

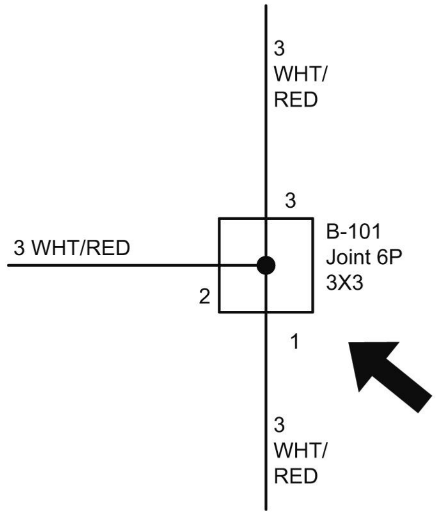
This connector has the structure of plural number of terminals collectively connected inside the connector.


Terminal
joint connection

LNW48ASH003101

How to show joint connection in the circuit diagram

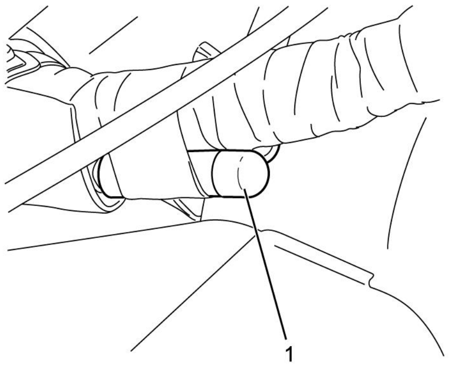
1. When joint connection can be shown as actual circuit diagram.


3
WHT/
RED
3
B-101
Joint 6P
3X3
3 WHT/RED
2
1
3
WHT/
RED

LNWG80SH000301

Weld Splice

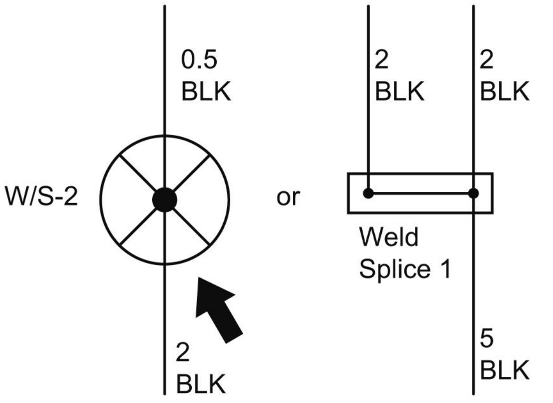
Weld splice is a harness that welds the point of the harness and does joint.



RTW58DSH000101

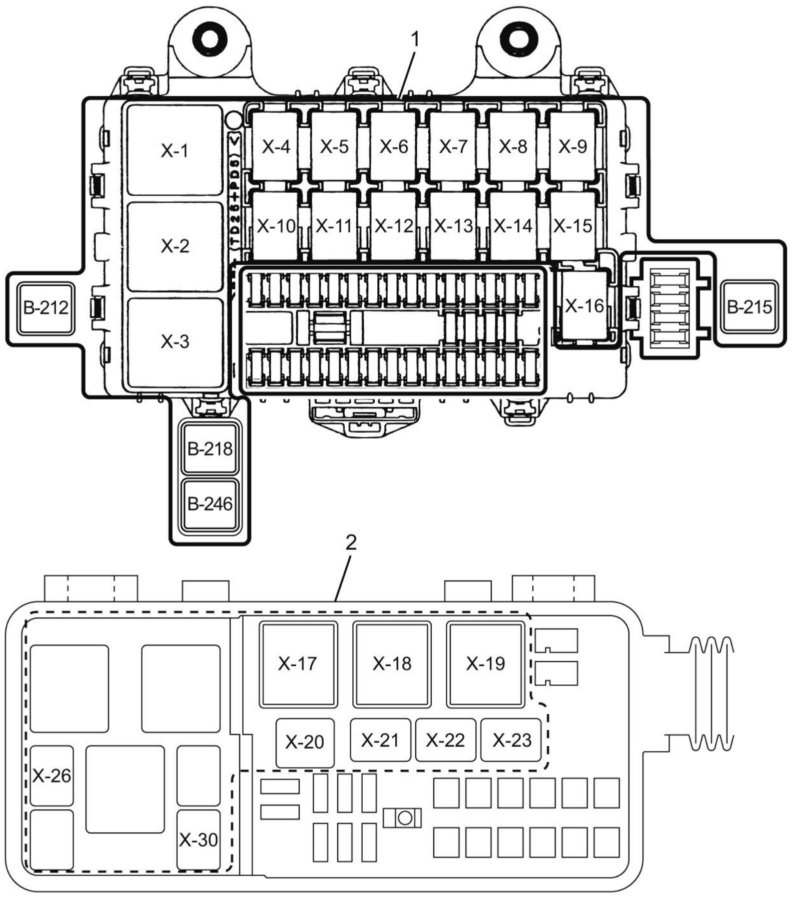
How to show weld splice in the circuit diagram

1. When weld splice can be shown as actual circuit diagram.


0.5
BLK
2
BLK
2
BLK
W/S-2
or
Weld
Splice 1
2
BLK
5
BLK

LNWG80SH000401

Relay Location


1
X-1
X-2
X-3
(TD26+PD6) V
X-4
X-5
X-6
X-7
X-8
X-9
X-10
X-11
X-12
X-13
X-14
X-15
X-16
B-212
B-215
B-218
B-246
2
X-17
X-18
X-19
X-20
X-21
X-22
X-23
X-26
X-30

LNWH80LF000101

Relay List

Connector No.	Relay Name
X-1	Stoplight
X-2	Daytime Running Light
X-3	Key On
X-4	TCM
X-5	P/N Start
X-6	Wiper Main
X-7	Horn
X-8	Wiper High/Low
X-9	Trailer Stop

X-10	—
X-11	—
X-12	Front Power Window
X-13	Headlight (Low)
X-14	Vacuum Pump
X-15	Headlight (High)
X-16	Taillight
B-212	Accessory Power
B-215	Blower Motor
B-218	Cigarette Lighter
B-246	Cornering Light
X-17	Starter
X-18	PM Sensor
X-19	NOx and Diesel Exhaust Fluid (DEF) Sensor
X-20	Magnetic Clutch
X-21	Condenser Fan
X-22	Rear Dome Light
X-23	Heater Valve
X-26	Marker Lamp
X-30	Fuel Heater

Diagnostic Information and Procedures

General Electrical Diagnosis

Caution: When fasteners are removed, always reinstall them at the same location from which they were removed. If a fastener needs to be replaced, use the correct part number fastener for that application. If the correct part number fastener is not available, a fastener of equal size and strength (or stronger) may be used. Fasteners that are not reused, and those requiring thread locking compound, will be called out. The correct torque values must be used when installing fasteners that require it. If the above conditions are not followed, parts or system damage could result.

The chassis electrical system is of 12-volt specifications with a negative ground polarity.

Wire sizes are appropriate to respective circuits, and classified by color. (The classification of harnesses by color is shown on the circuit diagram for ease of harness identification.)

The wire size is determined by load capacity and the length of wire required.

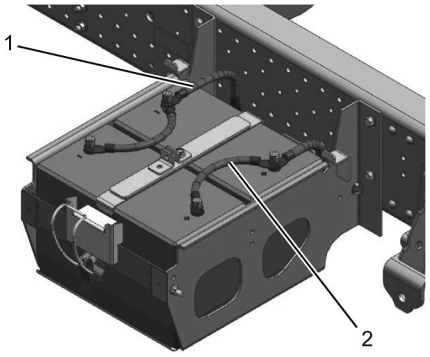
The vehicle harnesses are: body harness, floor harness, engine harness, frame front harness, frame rear harness, rear body harness, dome light harness, door harness and battery cable.

The harnesses are protected either by tape or corrugated tube, depending on harness location.

The circuit for each system consists of the power source, wire, fuse, relay switch, load parts and ground, all of which are shown on the circuit diagram.

In this manual, each electrical device is classified by system. For major parts shown on the circuit based on the circuit diagram for each system, a summary, diagnosis of troubles, inspection and removal and installation procedures are detailed.

Notes for Working on Electrical Items



LNWH80SH000301

Disconnecting the Battery Cable

1. All switches should be in the "LOCK" position.

Warning: **Refer to CELL Link Error - Link target cell (cell ID 178001) is invalid for this publication..**

2. Disconnect the battery ground cable (1).

   Note:

   - Do not disconnect within 3 minute after turning OFF the ignition switch.
   - The ECM may malfunction if the battery cable is disconnected within 3 minutes.

3. Disconnect the battery positive cable (2).

   Note: It is important that the battery ground cable be disconnected first. Disconnecting the battery positive cable first can result in a short circuit.

Connecting the Battery Cable

Follow the disconnecting procedure in the reverse order.

Note: Clean the battery terminal and apply a light coat of grease to prevent terminal corrosion.

Battery Diagnosis

Visual Inspection

- Battery case or cover for cracks or breaks that could permit loss of electrolyte. Replace the battery if badly damaged, determine the cause of the damage, and correct as needed.

Hydrometer Check

Green Dot Visible

If the hydrometer has a GREEN DOT visible, the battery is ready for testing. Proceed to “Load Test” later in this section.

Green Dot not Visible or Dark

Charge the battery as outlined under the heading “Battery Charging Procedure” later in this section.

Light or Bright Indicator; Illustrated as “CLEAR”

Do not charge, test or jump start the battery.

Replace the battery.

Load Test

Top Terminal Batteries

If there is more than one battery in the vehicle, check each battery separately after disconnecting them from each other.

1. Remove battery cables from battery terminals and proceed as follows:
2. Attach terminal hex nuts, required for testing and charging as shown in figure below.

   Note:

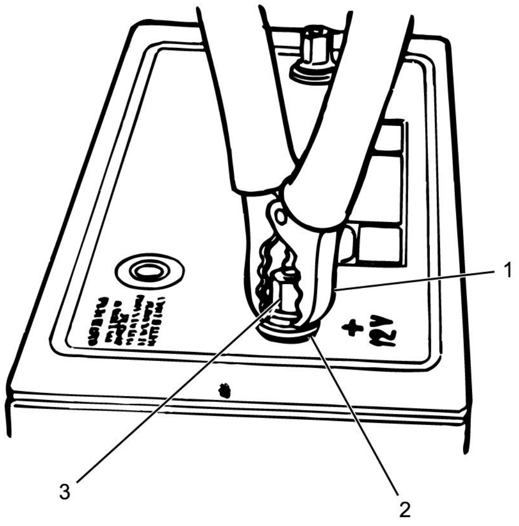
   - The alligator clamps of the tester or charger should be placed between the terminal nuts and the lead pads of the terminal studs as shown in figure 5. If the tester clamps cannot be attached between nuts and lead pads of the terminals, the load value of “Load Test” should be 210 amperes.
3. Connect a voltmeter and a battery load tester across the battery terminals.
4. Remove the surface charge from all batteries that have been on charge IF THE GREEN HYDROMETER DOT IS VISIBLE. This includes batteries in the vehicle having been charged by the vehicle generator.

   Do not remove surface charge from batteries that have been in storage. To remove surface charge, apply a 300-ampere load across the terminals for 15 seconds. Then turn off load and wait for 15 seconds to allow the battery to recover.

   Voltage and Temperature Chart :

   #### Degrees Temperature

   - 21°C (70°F) and Above; 9.6 minimum voltage
   - 10°C (50°F); 9.4 minimum voltage
   - -1°C (30°F); 9.1 minimum voltage
   - -10°C (14°F); 8.8 minimum voltage
   - -18°C (0°F); 8.5 minimum voltage
5. If battery voltage does not drop below the minimum voltage as shown in the previous “Voltage and Temperature Chart,” the battery is good and should be returned to service. (The battery temperature must be estimated by feel and by the temperature the battery has been exposed to for the preceding few hours.) If battery voltage drops below the minimum voltage listed, replace the battery.



LNW46DMH000301

Repair Instructions

Battery Charging

Battery Charging Procedure and Rules

The following basic rules apply to any sealed battery charging situation:

1. Do not charge a battery if the hydrometer is clear or light yellow – replace the battery.
2. Charge rates between three and fifty amperes are satisfactory as long as spewing of electrolyte does not occur or the battery does not feel excessively hot (over 52°C (125°F)).

   If spewing occurs or temperature exceeds 52°C (125°F), the charging rate must be reduced or temporarily halted to permit cooling.
3. The battery is sufficiently charged when the green dot in the built-in hydrometer is visible. No further charging is required. Shake or tilt the battery at hourly intervals during charging to mix the electrolyte and see if the green dot appears.
4. Battery charging consists of a charge current in amperes for a period of time in hours. Thus a 25-ampere charging rate for two hours would be 50 ampere-hour charge to the battery. In most cases, batteries whose load test values are less than 200 amperes will have the green dot visible after least a 50 ampere-hour charge. Most batteries whose load test values are greater than 200 amperes will have the green dot visible after at least a 75 ampere-hour charge. In the event that the green dot does not appear, after this amount of charging, continue charging for another 50 to 75 ampere-hours. If the green dot still does not appear, replace the battery.
5. The time required for a charge will vary because:
   - Size of Battery – Example: A completely discharged large heavy-duty battery requires more than twice the recharging as a completely discharged small passenger car battery.
   - Temperature – Example: A longer time will be needed to charge any battery at -18°C (0°F) than at 27°C (80°F). When a fast charger is connected to a cold battery, the current accepted by the battery will be very low at first, then in time the battery will accept a higher rate as it warms up.
   - State of Charge – Example: A completely discharged battery requires more than twice as much as a half-charged battery. Because of a completely discharged battery the electrolyte is nearly pure water and a poor conductor, thus current flow accepted is very low at first. As the charging current causes the electrolyte acid content to increase, the charging current will likewise increase.
   - Charger Capacity – Example: A charger that can supply only 5 amperes will require a much longer period of charging than a charger that can supply 30 amperes or more.

Battery Cables

Excessive resistance caused by poor terminal connections and partial short circuits through defective cable insulation will result in abnormal voltage drop in the starter cable. Low voltage at the starter will cause hard starting.

Note: To prevent the vehicle from moving and the engine from starting while performing these checks, engage the parking brake and place the transmission in "Neutral" position.

On diesel engines, disconnect the battery feed terminal connector at the fuel shutoff valve, or pull the "Engine Stop" knob out, as equipped.

Measure

1. Voltage drop between negative (–) battery terminal and vehicle frame.
   - Place one prod of test voltmeter on grounded battery post (not on cable clamp) and the other on frame. Operate starter and note the voltage reading.
2. Voltage drop between the positive (+) battery terminal and starter terminal stud with starter operating.
3. Voltage drop between starter housing and frame with starter operating.

   If the voltage drop in any of the above is more than 1.0 volt, there is excessive resistance in the circuit. To eliminate resistance, the cables should be disconnected and connections cleaned. If cables are frayed or the clamps excessively corroded, the cables should be replaced. When selecting new cables, be sure they are at least as large as the ones being replaced.

Jump Starting

If vehicle has a discharged battery, it can be started by using energy from another battery – a procedure called "jump starting."

Warning: The instructions below must be followed exactly or personal injury (particularly to eyes) or property damage may result from battery explosion, battery acid, or electrical (short circuit) burns. The major safety precaution is to make the final connection to ground on the engine at some distance from the battery. This helps reduce the chance of an explosion due to sparks. To lessen the chance of an explosion, never expose the battery to open flames or electric sparks. Do NOT smoke near the battery. Batteries give off a gas that is flammable and explosive. To lessen the risk of injury in case an explosion does occur, wear eye protection or shield your eyes when working near any battery. Do NOT lean over a battery. Do NOT allow battery fluid to contact eyes, skin, fabrics, or painted surfaces because battery fluid is a corrosive acid. Flush any contacted area with water immediately and thoroughly. Also get medical help if eyes are affected. To lessen the risk of a short circuit, remove rings, metal watch bands and other metal jewelry. Do NOT allow metal tools to contact the positive battery terminal (or metal in contact with it) and any other metal on the vehicle. Be certain when attaching the jumper cable clamps to the positive terminals of the batteries that neither clamp contacts any other metal.

1. This vehicle has a 12-volt starting system and a negative ground electrical system. Be sure that the other vehicle also has a 12-volt starting system and negative ground. Its owner's manual may give you that information.

   IF YOU ARE UNSURE OF THE OTHER VEHICLE'S VOLTAGE (OR IF THE VOLTAGE AND GROUND ARE DIFFERENT FROM YOUR VEHICLE), DO NOT TRY TO JUMP START, AS PERSONAL INJURY OR SEVERE DAMAGE TO ELECTRICAL AND ELECTRONIC PARTS MAY RESULT.

   Because of the extra torque needed to start many diesel engines, diesel powered vehicles often have more than one battery. While it is possible to use the procedure described here to jump start a single-battery vehicle from a vehicle with more than one battery, the opposite may not be true. For example, at low temperature it may not be possible to start a diesel engine. Never connect "+" (red) to "-" (black), or "-" to "+".
2. Position the vehicle with the good (charged) battery so that the jump starting cables will reach. DO NOT ALLOW THE VEHICLES TO TOUCH.
3. Turn off all electrical motors and accessories in both vehicles. Turn off all lights except those needed to protect the vehicle or light up the work area. Turn off the ignition, apply the parking brake firmly. If the vehicle(s) have an automatic transmission, shift to "PARK" (if no "PARK" position, shift to "NEUTRAL". If the vehicle(s) has a manual transmission, shift to "NEUTRAL". Do this in both vehicles. For vehicles with AC wheel lock control, refer to step 10.
4. If the discharged battery has filler caps, check the fluid level. DO NOT CHECK NEAR AN OPEN FLAME AND DO NOT SMOKE. Add clear drinking water to the proper level if low, and replace caps before jump starting.
5. Connect the first jumper cable from positive "+" (red) terminal on one battery to the "+" (red) terminal on the other battery. Never connect "+" (red) to "-" (black), or "-" to "+".
6. Connect one end of the second cable to the grounded negative "-" (black) terminal of the good (charged) battery.
7. Connect the other end of the second jumper cable to a solid, stationary, metallic point on the engine of the vehicle with the discharged battery but at a point AWAY FROM THE BATTERY, 450 mm (18 in) or more from the

battery if possible. Do not connect it to pulleys, fans, or other parts that will move when the engine is started.

Do not touch hot manifolds as they can cause severe burns. If hot or moving parts can be avoided, the MOUNTING BRACKETS for the generator, or the air conditioning compressor, generally make a good point for this final ground attachment point. Take care that the jumper cable does not contact moving parts on or near the generator or compressor.

8. Start the engine on the vehicle with the good (charged) battery and run the engine at a moderate speed.

9. Start the engine of the vehicle that has the discharged battery.

10. Jump Starting – AC Wheel Lock Controls – if it is necessary to jump start the vehicle from a booster battery, the circuit boards in the wheel lock control may be damaged. In order to avoid this condition, the following procedure should be used for jump starting vehicles equipped with wheel lock control:

- **10.1.** Connect the jumper cables between the booster battery and the discharged vehicle battery, per normal recommended procedures.
- **10.2.** Start the vehicle per normal procedures.
- **10.3.** Turn on major electrical accessories including lights and heater blower.
- **10.4.** Disconnect the jumper cables from the vehicle battery per normal procedures.

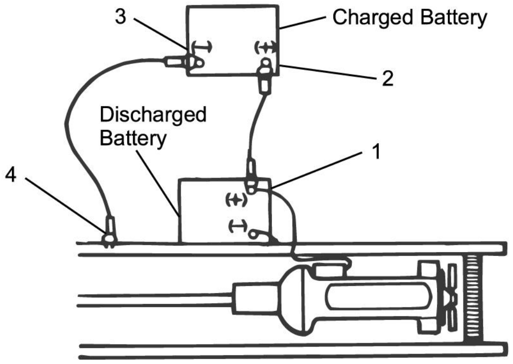
  The above procedure allows the transient energy to be dissipated through several circuits rather than having it all flow through the wheel lock control system.

11. Remove the battery cables by reversing the connecting sequence exactly. Begin by removing the last clamp first; that is, remove the jumper cable from the engine of the vehicle with the discharged battery as the first step.

Note: Make connections in numerical order.

Do not allow the vehicles to touch.

Make last connection on frame away from the battery.



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Battery Replacement

When handling a battery, the following safety precautions should be observed:

1. Hydrogen gas is produced by the battery. A flame or spark near the battery may cause the gas to ignite.
2. Battery fluid is highly acidic. Avoid spilling on clothing or other fabric. Any spilled electrolyte should be flushed with large quantities of water and cleaned immediately.

Removal Procedure

Warning: Refer to CELL Link Error - Link target cell (cell ID 178001) is invalid for this publication..

1. Remove the battery ground cable from negative terminal.

   Note:

   - Do not disconnect within 3 minute after turning OFF the ignition switch.
   - The ECM may malfunction if the battery cable is disconnected within 3 minutes.

2. Remove the battery positive cable from positive terminal.
3. Remove the battery hold-down clamp.
4. Remove the battery.

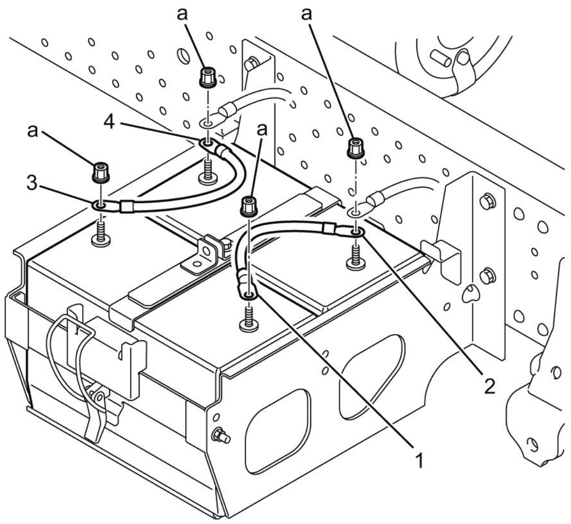
Inspection Procedure

Inspect the battery for physical damage, such as a cracked top or battery case, and correct.

Installation Procedure

1. Install the battery.
   1.1. Draw down the hold-down clamp, being careful not to distort or crack the case or cover.
   1.2. Check polarity to be sure the battery is not revered with respect to the generator.
2. Install the battery positive cable to positive terminal.
3. Install the battery ground cable to negative terminal.

   Tighten the battery cables to the battery.

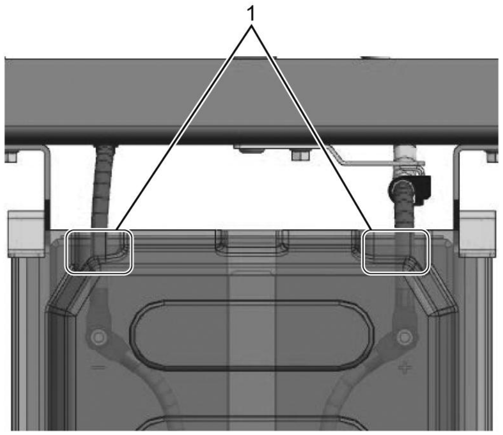


LNWH80SH000101

Note: Fix terminals to the plus side in order as follows.

CABLE ASM; BAT TO BAT — CABLE ASM; BAT POS — HARNESS TERMINAL

4. Fix terminals of cable (+), (−) straight to match the opening part of battery cover (1).



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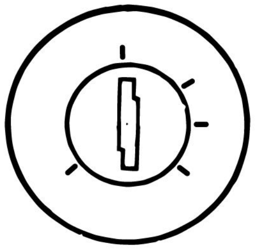
Ignition and Start Switch Replacement



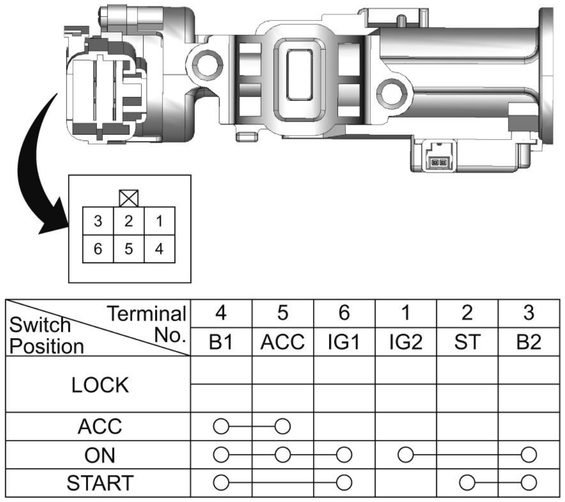
LNW780SH011701

The ignition switch positions are LOCK, ACC, ON and START. Turning the starter key to these positions a circuit for starting the engine, the operation of accessories, or stop the engine.

Inspection Procedure

Check the continuity between the ignition connector terminals.

Repair or replace the switch when the result of inspection is found abnormal.



Switch Position \ Terminal No.	4 B1	5 ACC	6 IG1	1 IG2	2 ST	3 B2
LOCK						
ACC	○—	—○				
ON	○—	—○—	—○	○—	—	—○
START	○—	—	—○		○—	—○

LNWG9CSH000101

Removal Procedure

Warning: **Refer to CELL Link Error - Link target cell (cell ID 178001) is invalid for this publication..**

1. Disconnect the battery ground cable.

   Note:

   - Do not disconnect within 3 minute after turning OFF the ignition switch.
   - The ECM may malfunction if the battery cable is disconnected within 3 minutes.

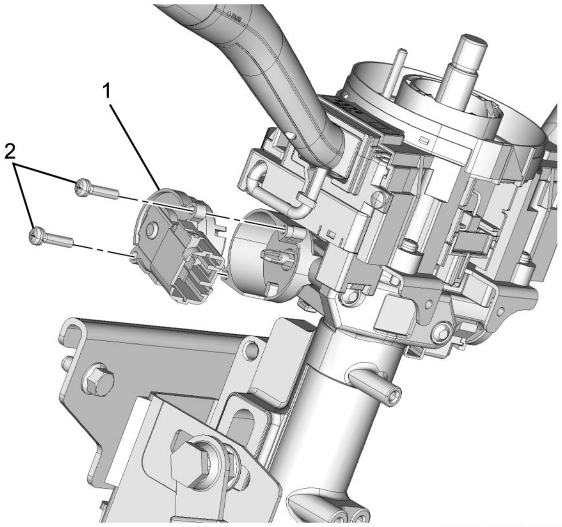
2. Remove the steering cowl.

   Refer to the CELL Link Error - Link target cell (cell ID 280895) is invalid for this publication..

3. Remove the ignition switch (1).

   3.1. Disconnect the connector.

   3.2. Remove the screws (2).



HFWE9CSH000101

Installation Procedure

To install, follow the removal steps in the reverse order.

Description and Operation

Exterior Lights Circuit Description

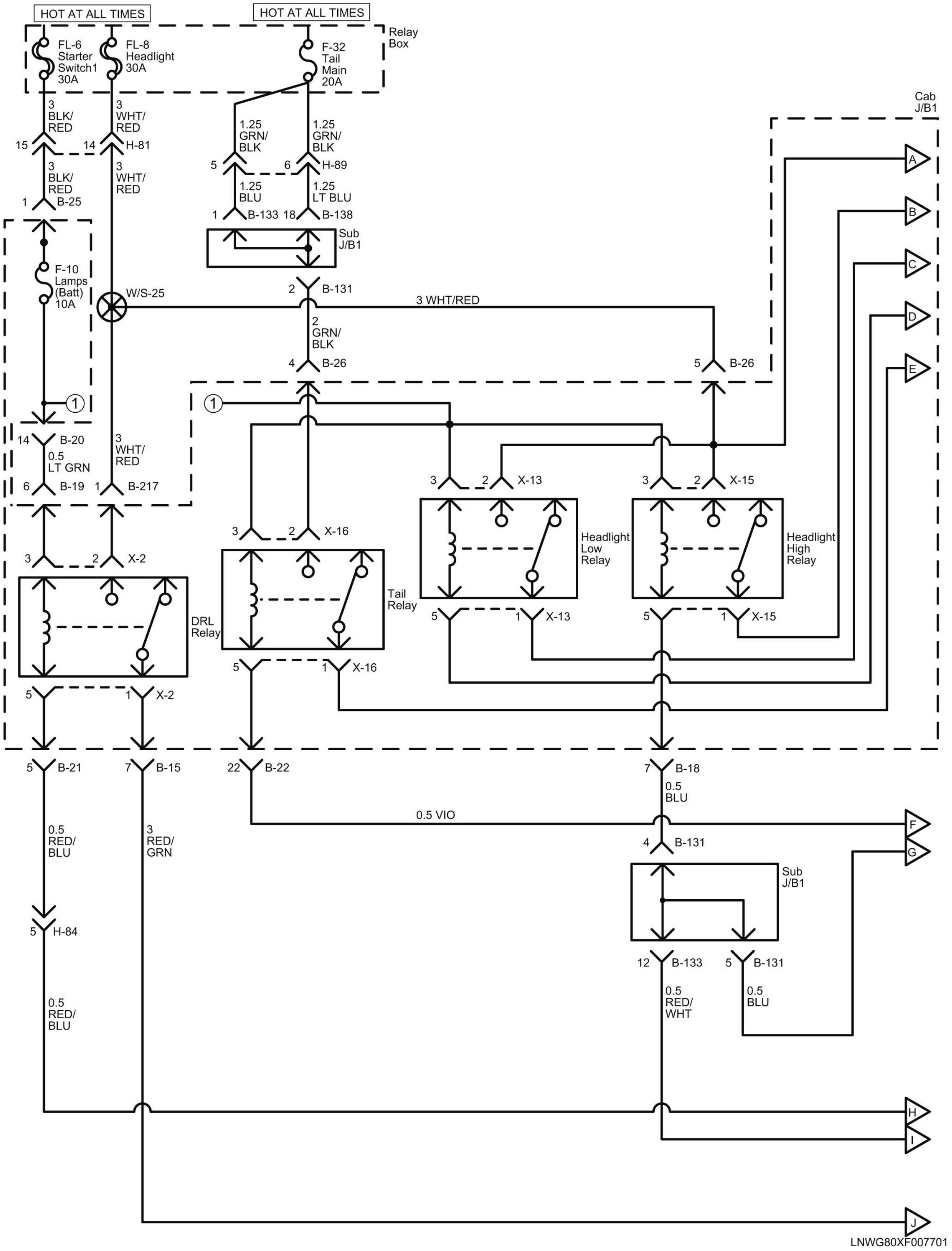
The circuit consists of lights (headlight, side marker light, clearance light, parking light, turn signal light [front, side and rear], cornering light, identification light, stoplight, taillight, backup light and license plate light), switches (ignition switch, combination switch, hazard warning switch, illumination control switch, brake switch, backup light switch and inhibitor switch), relays and other units.

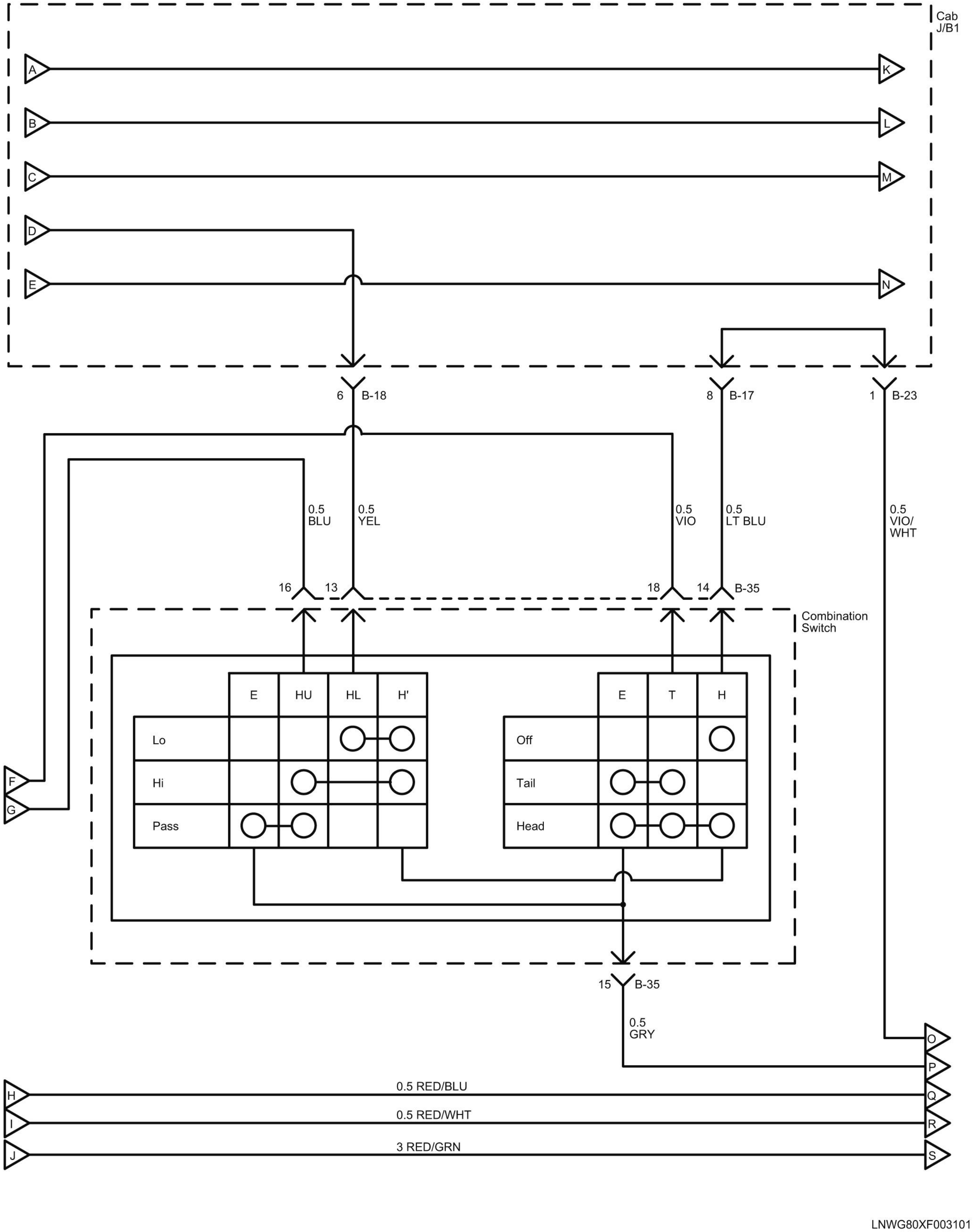
The circuit has the DRL (Daytime Running Light) function. The DRL unit lights up the headlight automatically when the engine is running and the parking brake is released. When the lighting switch is turned to the headlight ON position, the DRL unit turns OFF the headlight.

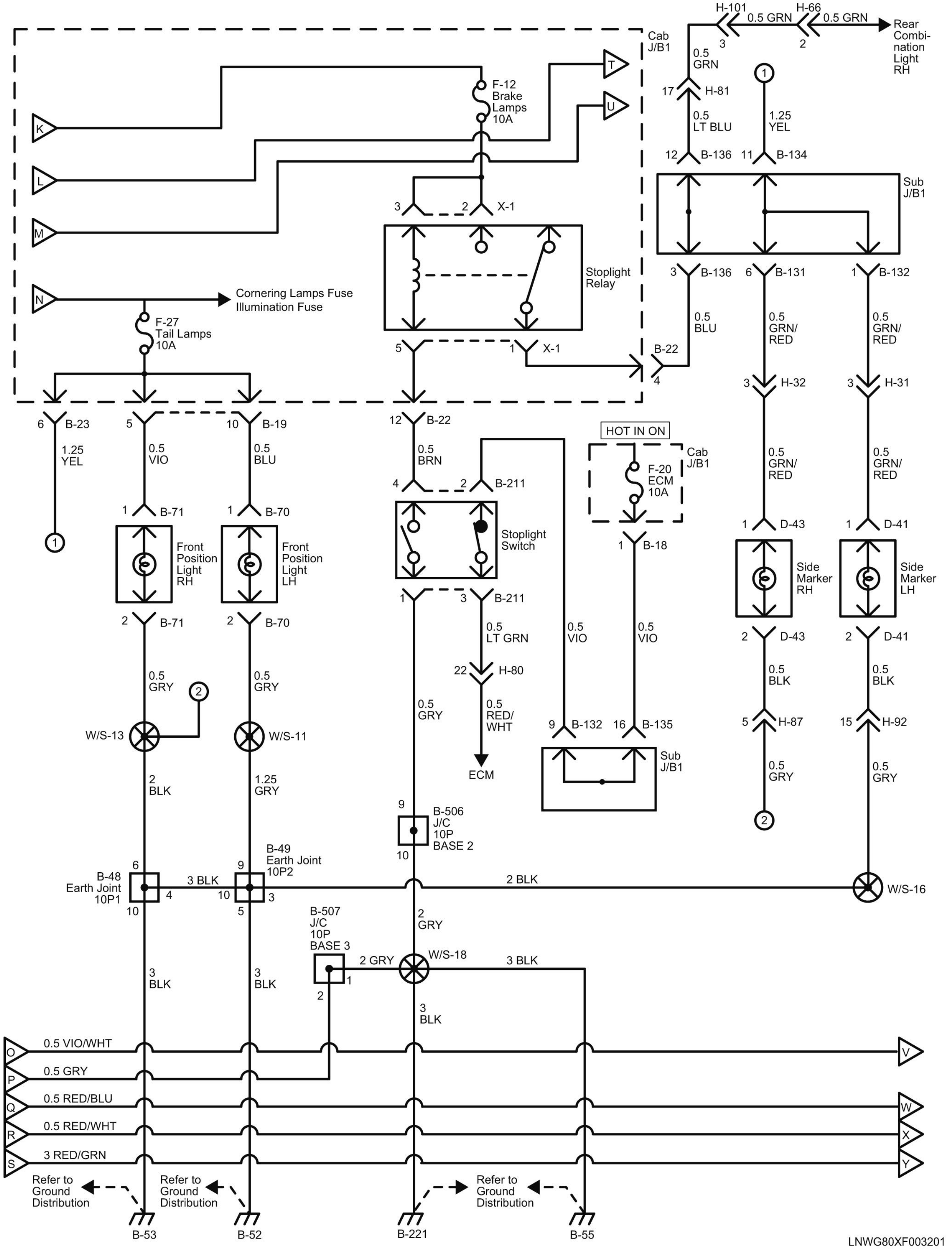
The combination switch consists of the lighting switch, the dimmer switch and the turn signal switch. The each of lights are operated by the combination switch or other switches.

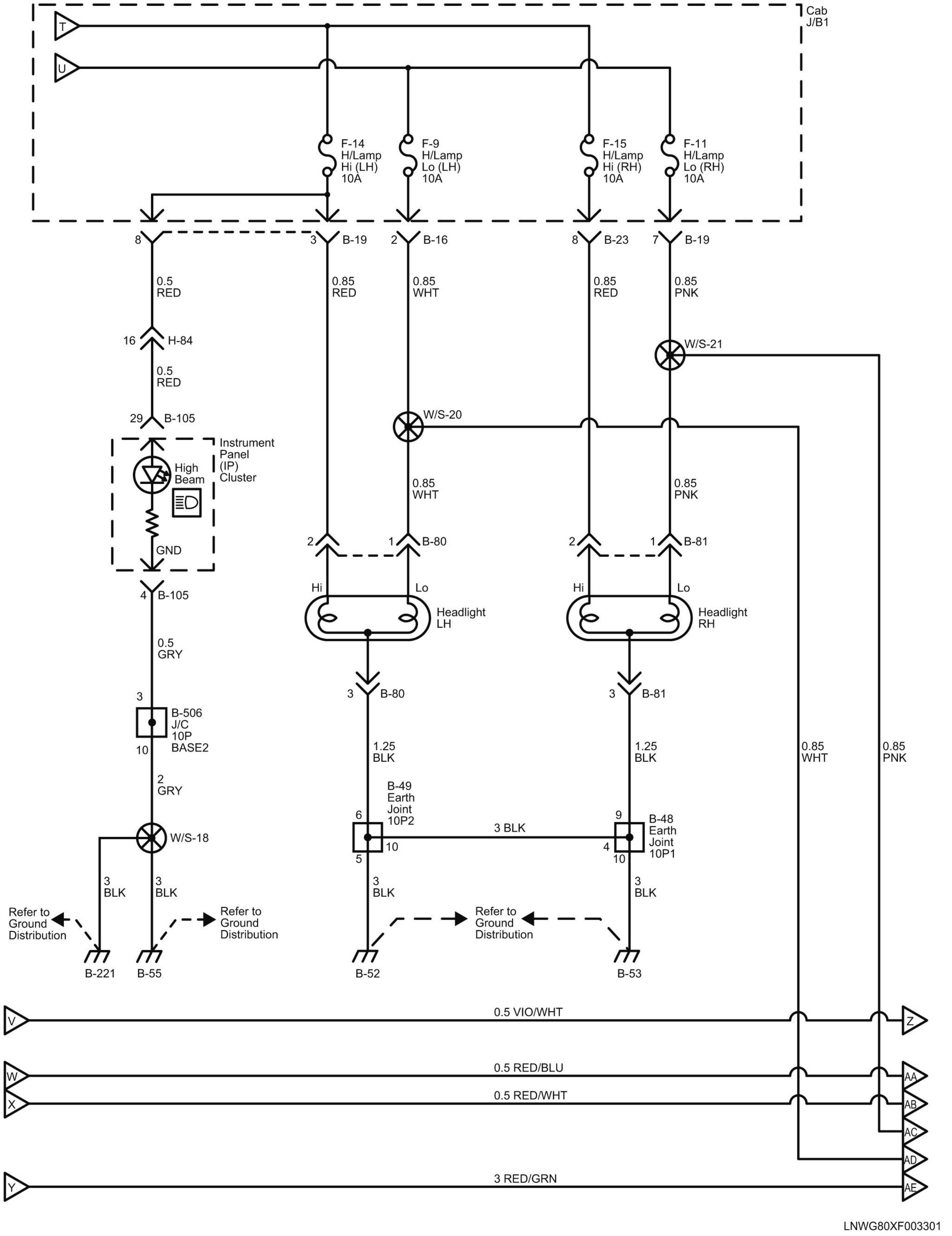
Schematic and Routing Diagrams

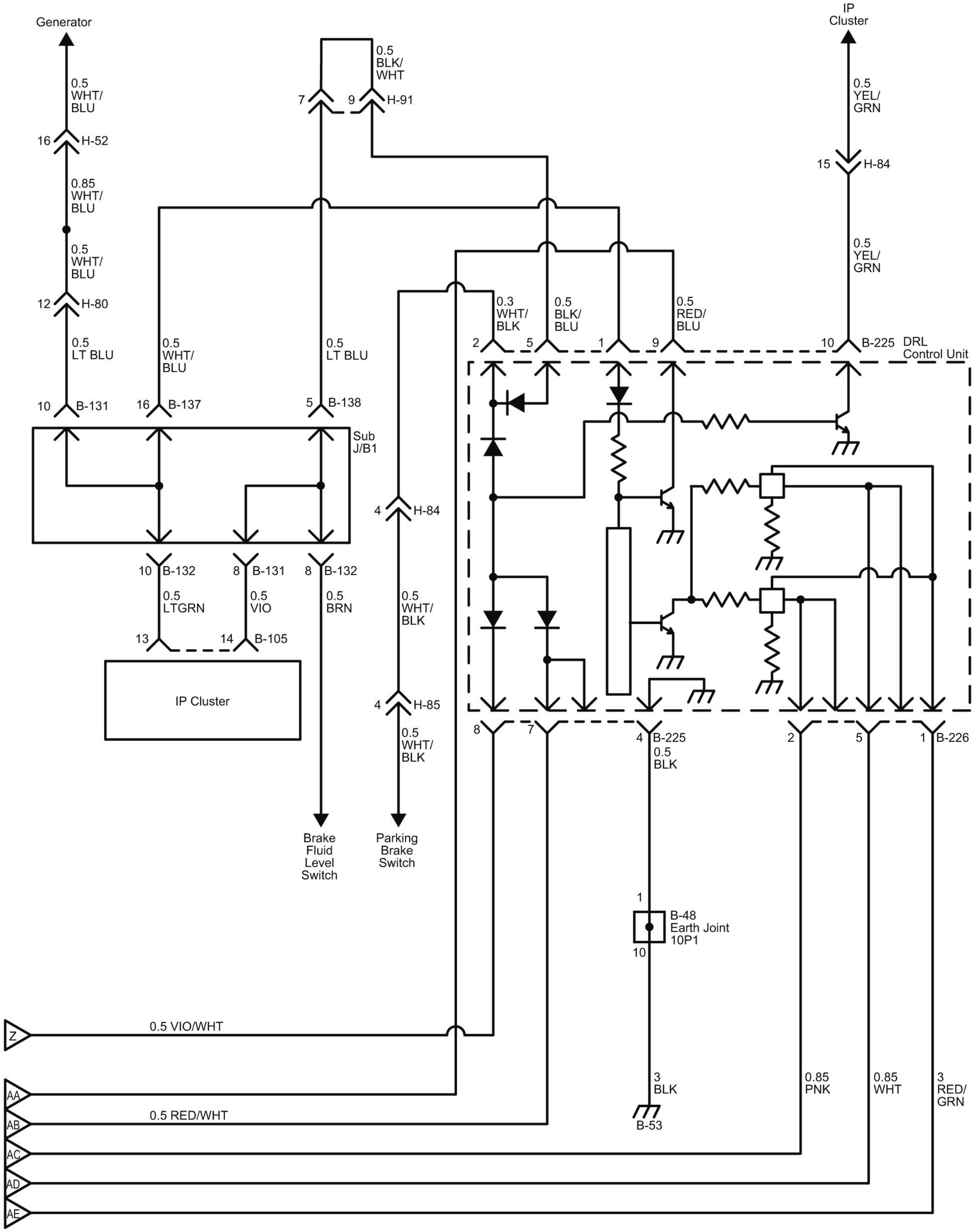
Exterior Lights Schematics


HOT AT ALL TIMES
HOT AT ALL TIMES
Relay Box
FL-6 Starter Switch1 30A
FL-8 Headlight 30A
F-32 Tail Main 20A
3 BLK/RED
3 WHT/RED
1.25 GRN/BLK
1.25 GRN/BLK
15
14
H-81
5
6
H-89
3 BLK/RED
3 WHT/RED
1.25 BLU
1.25 LT BLU
1 B-25
1 B-133
18 B-138
Sub J/B1
Cab J/B1
A
B
C
D
E
F-10 Lamps (Batt) 10A
W/S-25
2 B-131
3 WHT/RED
2 GRN/BLK
4 B-26
5 B-26
①
①
14 B-20
0.5 LT GRN
3 WHT/RED
6 B-19
1 B-217
3
2
X-13
3
2
X-15
Headlight Low Relay
Headlight High Relay
3
2
X-16
Tail Relay
3
2
X-2
DRL Relay
5
1
X-13
5
1
X-15
5
1
X-16
5
1
X-2
5 B-21
7 B-15
22 B-22
7 B-18
0.5 BLU
0.5 VIO
F
G
4 B-131
Sub J/B1
0.5 RED/BLU
3 RED/GRN
5 H-84
0.5 RED/BLU
12 B-133
5 B-131
0.5 RED/WHT
0.5 BLU
H
I
J
LNWG80XF007701

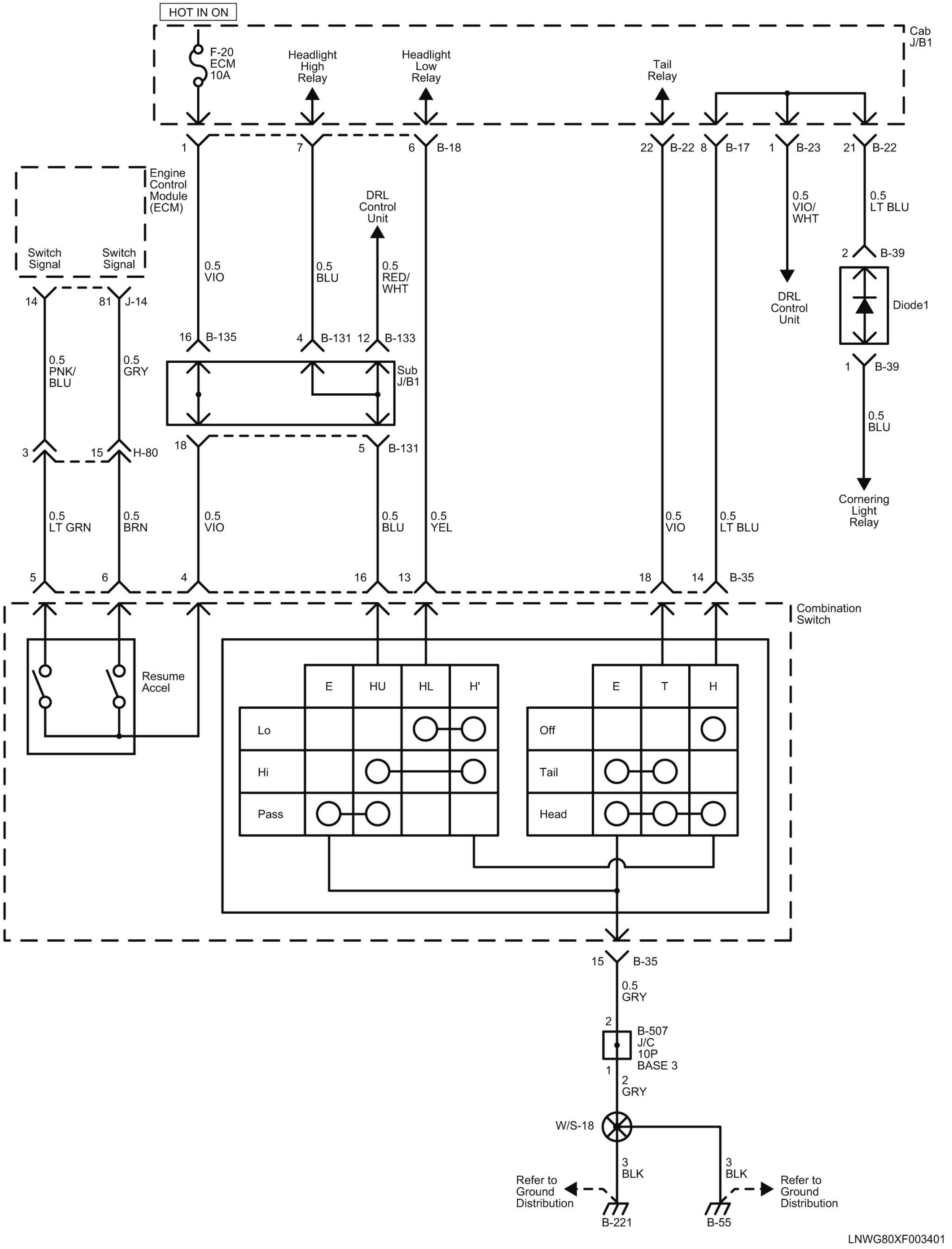

Cab
J/B1
A
B
C
D
E
K
L
M
N
6 B-18
8 B-17
1 B-23
0.5
BLU
0.5
YEL
0.5
VIO
0.5
LT BLU
0.5
VIO/
WHT
16
13
18
14 B-35
Combination
Switch
E
HU
HL
H'
Lo
Hi
Pass
E
T
H
Off
Tail
Head
F
G
15 B-35
0.5
GRY
O
P
H
I
J
0.5 RED/BLU
0.5 RED/WHT
3 RED/GRN
Q
R
S
LNWG80XF003101

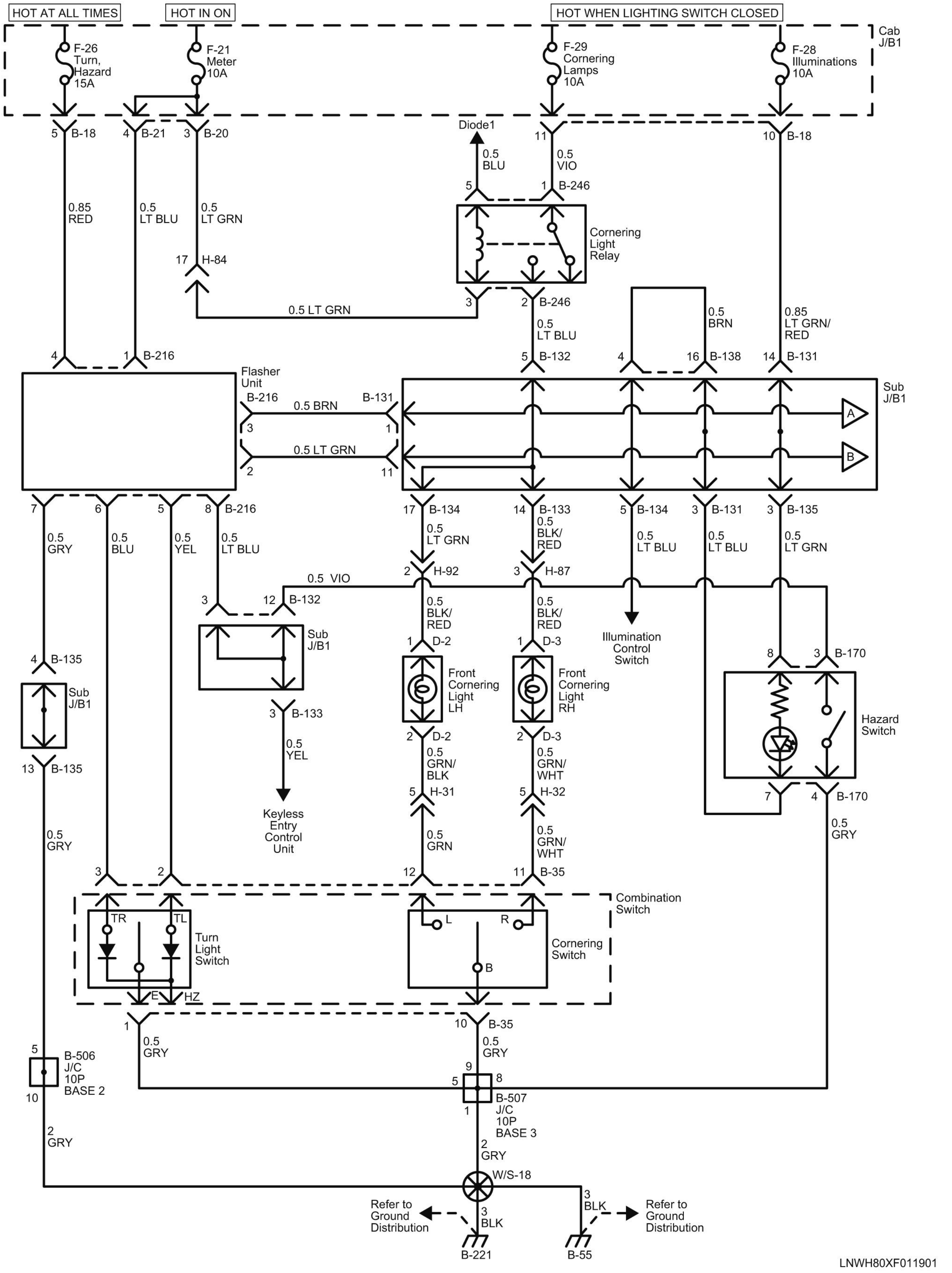

Cab J/B1
F-12 Brake Lamps 10A
T
U
K
L
M
N
Cornering Lamps Fuse Illumination Fuse
F-27 Tail Lamps 10A
3
2
X-1
Stoplight Relay
5
1
X-1
B-22
4
H-101
3
0.5 GRN
H-66
2
0.5 GRN
Rear Combi-nation Light RH
0.5 GRN
17
H-81
0.5 LT BLU
12
B-136
1
1.25 YEL
11
B-134
Sub J/B1
3
B-136
6
B-131
1
B-132
0.5 BLU
0.5 GRN/RED
0.5 GRN/RED
3
H-32
3
H-31
0.5 GRN/RED
0.5 GRN/RED
1
D-43
1
D-41
Side Marker RH
Side Marker LH
2
D-43
2
D-41
0.5 BLK
0.5 BLK
5
H-87
15
H-92
0.5 GRY
0.5 GRY
2
6
B-23
5
10
B-19
12
B-22
1.25 YEL
0.5 VIO
0.5 BLU
0.5 BRN
1
1
B-71
1
B-70
4
2
B-211
Front Position Light RH
Front Position Light LH
Stoplight Switch
HOT IN ON
Cab J/B1
F-20 ECM 10A
1
B-18
2
B-71
2
B-70
1
3
B-211
0.5 LT GRN
0.5 VIO
0.5 VIO
22
H-80
0.5 RED/WHT
ECM
0.5 GRY
0.5 GRY
2
W/S-13
W/S-11
0.5 GRY
9
B-132
16
B-135
Sub J/B1
2 BLK
1.25 GRY
9
B-506 J/C 10P BASE 2
10
B-48 Earth Joint 10P1
6
4
10
3 BLK
9
B-49 Earth Joint 10P2
10
3
5
2 BLK
W/S-16
2 GRY
B-507 J/C 10P BASE 3
2 GRY
1
2
W/S-18
3 BLK
3 BLK
3 BLK
3 BLK
O
0.5 VIO/WHT
V
P
0.5 GRY
Q
0.5 RED/BLU
W
R
0.5 RED/WHT
X
S
3 RED/GRN
Y
Refer to Ground Distribution
Refer to Ground Distribution
Refer to Ground Distribution
B-53
B-52
B-221
B-55
LNWG80XF003201

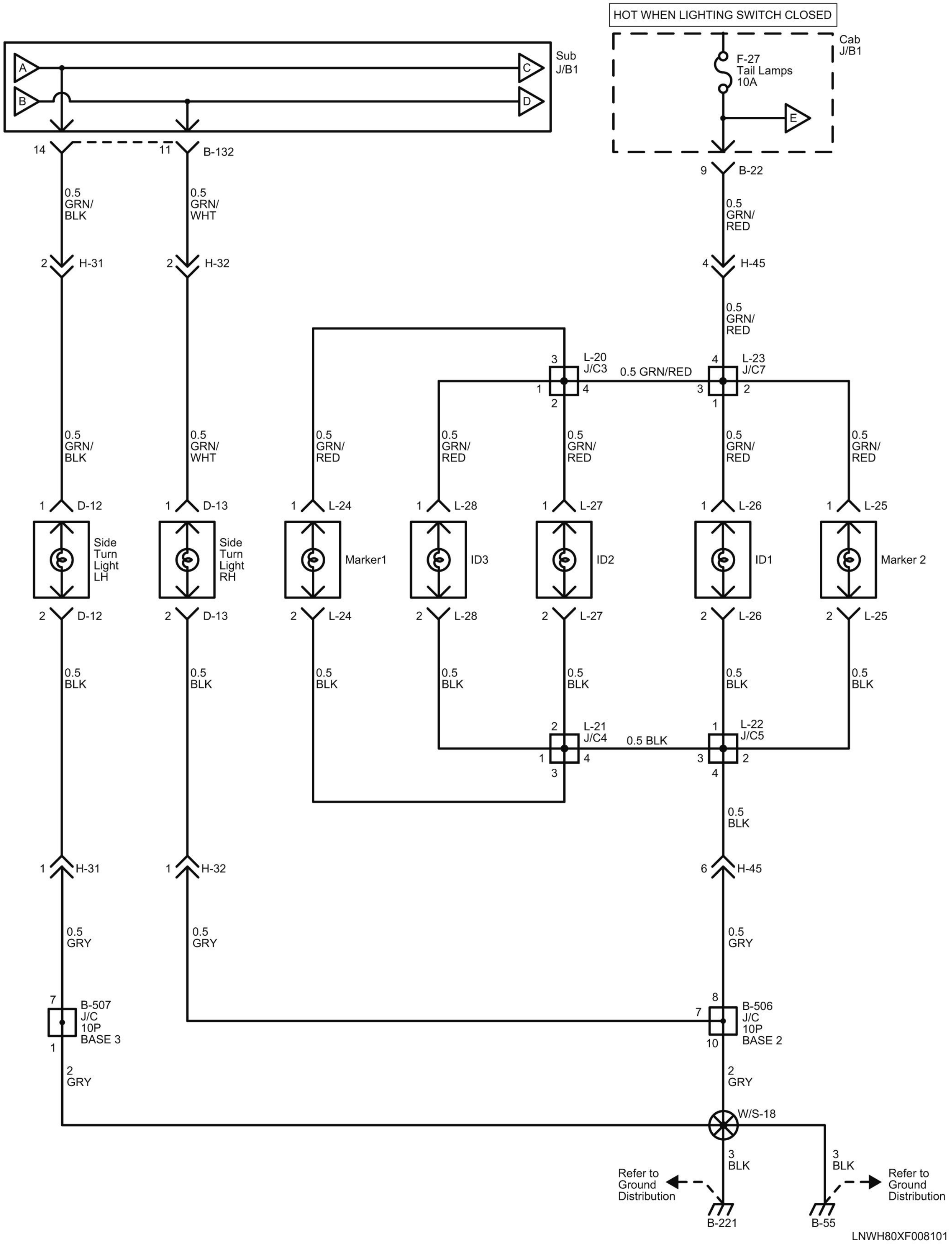

Cab
J/B1
T
U
F-14
H/Lamp
Hi (LH)
10A
F-9
H/Lamp
Lo (LH)
10A
F-15
H/Lamp
Hi (RH)
10A
F-11
H/Lamp
Lo (RH)
10A
8
3 B-19
2 B-16
8 B-23
7 B-19
0.5
RED
0.85
RED
0.85
WHT
0.85
RED
0.85
PNK
16 H-84
W/S-21
0.5
RED
29 B-105
W/S-20
Instrument
Panel
(IP)
Cluster
High
Beam
GND
0.85
WHT
0.85
PNK
2
1 B-80
2
1 B-81
Hi
Lo
Headlight
LH
Hi
Lo
Headlight
RH
4 B-105
0.5
GRY
3 B-80
3 B-81
3
B-506
J/C
10P
BASE2
10
1.25
BLK
1.25
BLK
0.85
WHT
0.85
PNK
2
GRY
B-49
Earth
Joint
10P2
6
9
B-48
Earth
Joint
10P1
3 BLK
W/S-18
5
10
4
10
3
BLK
3
BLK
3
BLK
3
BLK
Refer to
Ground
Distribution
Refer to
Ground
Distribution
Refer to
Ground
Distribution
B-221
B-55
B-52
B-53
V
0.5 VIO/WHT
Z
W
0.5 RED/BLU
AA
X
0.5 RED/WHT
AB
AC
AD
Y
3 RED/GRN
AE
LNWG80XF003301

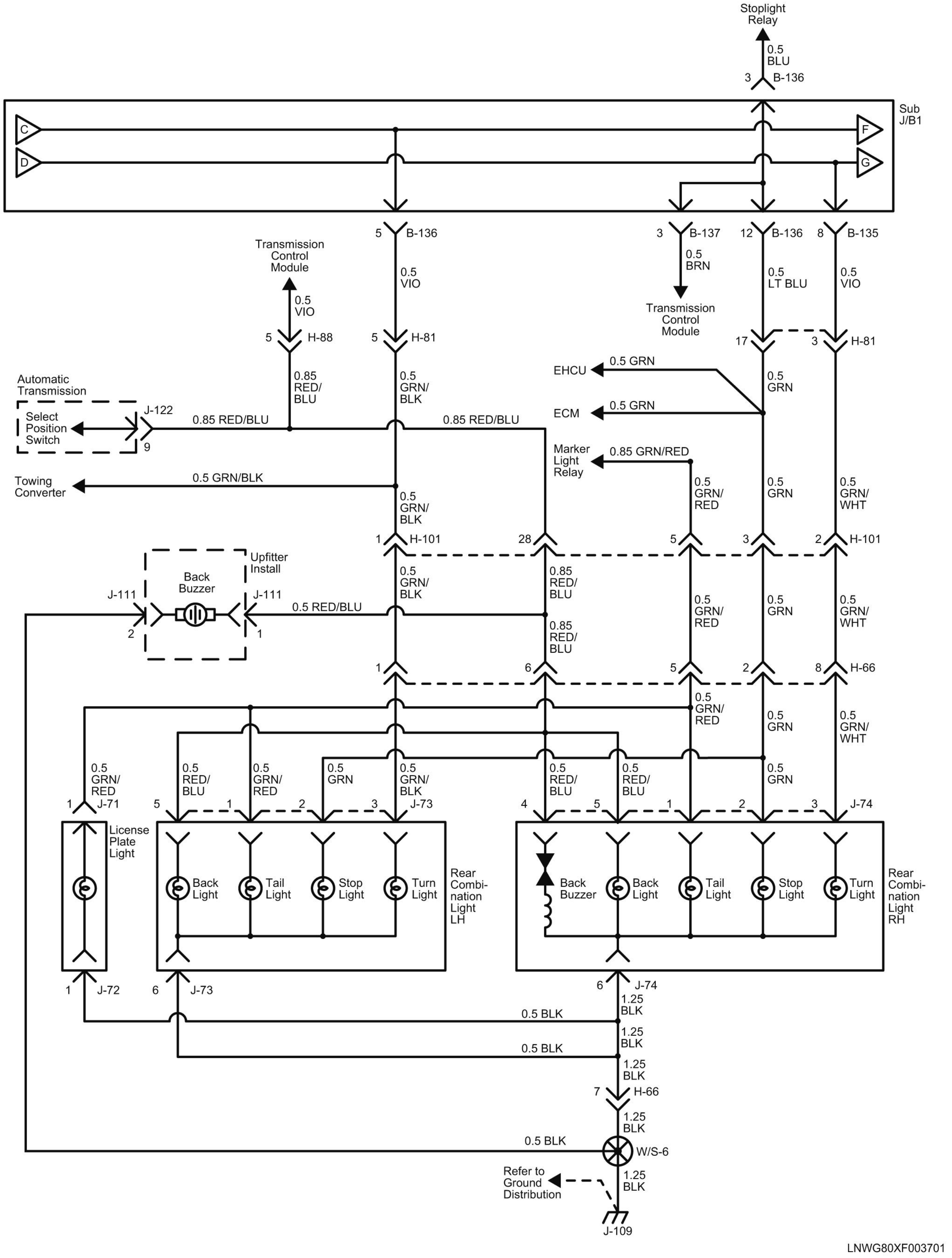

Generator
0.5 WHT/ BLU
16 H-52
0.85 WHT/ BLU
0.5 WHT/ BLU
12 H-80
0.5 LT BLU
10 B-131
0.5 WHT/ BLU
16 B-137
0.5 BLK/ WHT
7
9 H-91
0.5 LT BLU
5 B-138
Sub J/B1
10 B-132
0.5 LTGRN
8 B-131
0.5 VIO
8 B-132
0.5 BRN
13
14 B-105
IP Cluster
Brake Fluid Level Switch
4 H-84
0.5 WHT/ BLK
4 H-85
0.5 WHT/ BLK
Parking Brake Switch
0.3 WHT/ BLK
0.5 BLK/ BLU
0.5 RED/ BLU
2
5
1
9
IP Cluster
0.5 YEL/ GRN
15 H-84
0.5 YEL/ GRN
10 B-225
DRL Control Unit
8
7
4 B-225
0.5 BLK
2
5
1 B-226
1
B-48 Earth Joint 10P1
10
3 BLK
B-53
0.85 PNK
0.85 WHT
3 RED/ GRN
Z
0.5 VIO/WHT
AA
AB
0.5 RED/WHT
AC
AD
AE

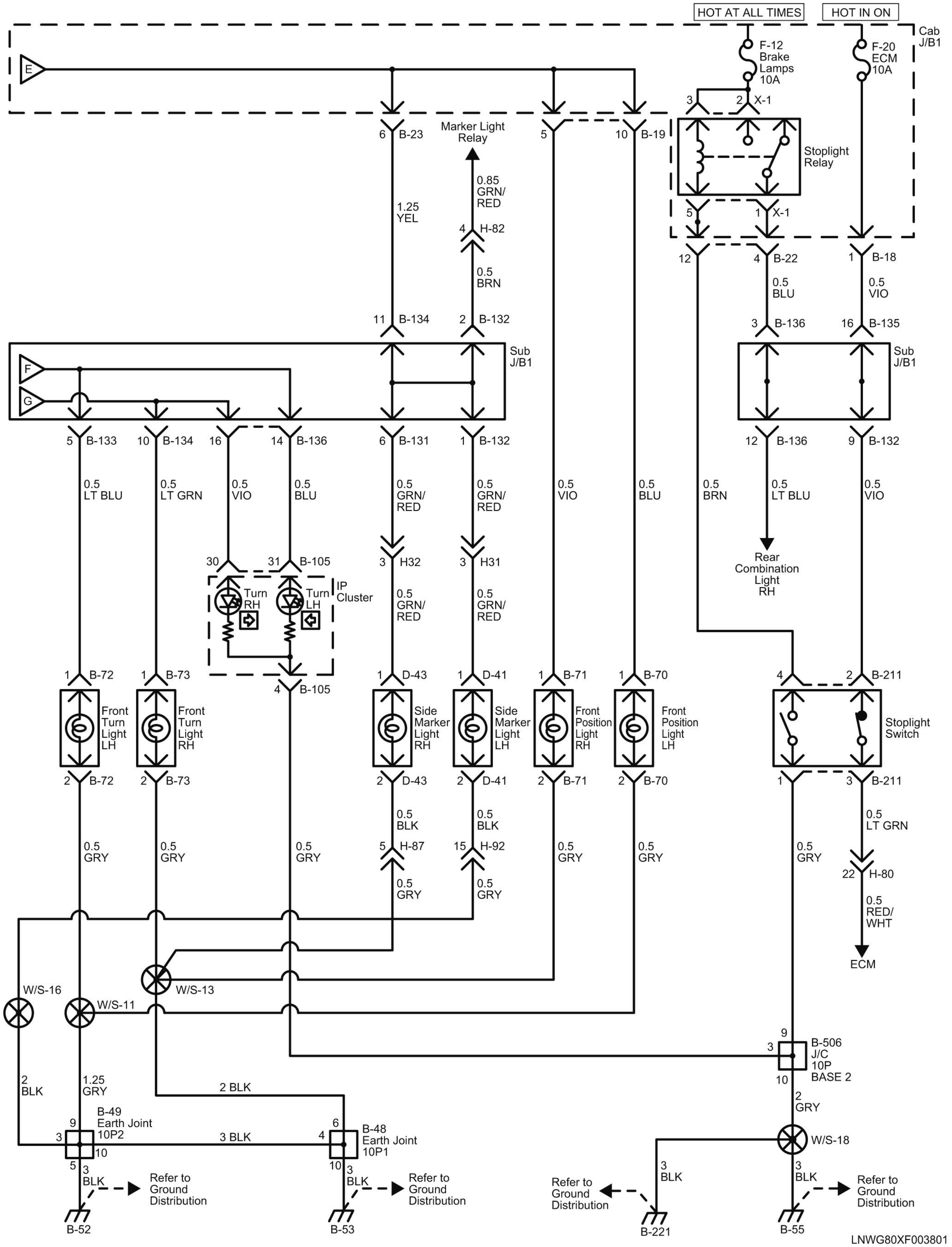
LNWG80XF009201


HOT IN ON
F-20
ECM
10A
Headlight High Relay
Headlight Low Relay
Tail Relay
Cab J/B1
1
7
6 B-18
22 B-22
8 B-17
1 B-23
21 B-22
Engine Control Module (ECM)
Switch Signal
Switch Signal
14
81 J-14
0.5 VIO
0.5 BLU
DRL Control Unit
0.5 RED/WHT
0.5 VIO/WHT
DRL Control Unit
0.5 LT BLU
2 B-39
Diode1
1 B-39
0.5 BLU
Cornering Light Relay
0.5 PNK/BLU
0.5 GRY
16 B-135
4 B-131
12 B-133
Sub J/B1
3
15 H-80
18
5 B-131
0.5 LT GRN
0.5 BRN
0.5 VIO
0.5 BLU
0.5 YEL
0.5 VIO
0.5 LT BLU
5
6
4
16
13
18
14 B-35
Combination Switch
Resume
Accel
E
HU
HL
H'
Lo
Hi
Pass
E
T
H
Off
Tail
Head
15 B-35
0.5 GRY
2
B-507
J/C
10P
BASE 3
1
2 GRY
W/S-18
3 BLK
3 BLK
Refer to Ground Distribution
Refer to Ground Distribution
B-221
B-55
LNWG80XF003401


HOT AT ALL TIMES
HOT IN ON
HOT WHEN LIGHTING SWITCH CLOSED
Cab J/B1
F-26 Turn, Hazard 15A
F-21 Meter 10A
F-29 Cornering Lamps 10A
F-28 Illuminations 10A
5 B-18
4 B-21
3 B-20
Diode1
11
10 B-18
0.5 BLU
0.5 VIO
5
1 B-246
0.85 RED
0.5 LT BLU
0.5 LT GRN
Cornering Light Relay
17 H-84
0.5 LT GRN
3
2 B-246
0.5 LT BLU
0.5 BRN
0.85 LT GRN/ RED
4
1 B-216
5 B-132
4
16 B-138
14 B-131
Flasher Unit
B-216
0.5 BRN
B-131
3
1
0.5 LT GRN
2
11
Sub J/B1
A
B
7
6
5
8 B-216
17 B-134
14 B-133
5 B-134
3 B-131
3 B-135
0.5 GRY
0.5 BLU
0.5 YEL
0.5 LT BLU
0.5 LT GRN
0.5 BLK/ RED
0.5 LT BLU
0.5 LT BLU
0.5 LT GRN
0.5 VIO
2 H-92
3 H-87
3
12 B-132
Sub J/B1
0.5 BLK/ RED
0.5 BLK/ RED
1 D-2
1 D-3
Illumination Control Switch
8
3 B-170
4 B-135
Sub J/B1
Front Cornering Light LH
Front Cornering Light RH
Hazard Switch
3 B-133
0.5 YEL
2 D-2
2 D-3
0.5 GRN/ BLK
0.5 GRN/ WHT
13 B-135
5 H-31
5 H-32
7
4 B-170
Keyless Entry Control Unit
0.5 GRY
0.5 GRN
0.5 GRN/ WHT
0.5 GRY
3
2
12
11 B-35
Combination Switch
TR
TL
Turn Light Switch
L
R
Cornering Switch
B
E
HZ
1
0.5 GRY
10 B-35
0.5 GRY
5
B-506 J/C 10P BASE 2
10
9
5
8
B-507 J/C 10P BASE 3
1
2 GRY
2 GRY
W/S-18
3 BLK
Refer to Ground Distribution
3 BLK
Refer to Ground Distribution
B-221
B-55
LNWH80XF011901


HOT WHEN LIGHTING SWITCH CLOSED
Sub J/B1
A
B
C
D
Cab J/B1
F-27 Tail Lamps 10A
E
14
11
B-132
9
B-22
0.5 GRN/ BLK
0.5 GRN/ WHT
0.5 GRN/ RED
2 H-31
2 H-32
4 H-45
0.5 GRN/ RED
3 L-20 J/C3
1 4 2
0.5 GRN/RED
4 L-23 J/C7
3 2 1
0.5 GRN/ BLK
0.5 GRN/ WHT
0.5 GRN/ RED
0.5 GRN/ RED
0.5 GRN/ RED
0.5 GRN/ RED
0.5 GRN/ RED
1 D-12
1 D-13
1 L-24
1 L-28
1 L-27
1 L-26
1 L-25
Side Turn Light LH
Side Turn Light RH
Marker1
ID3
ID2
ID1
Marker 2
2 D-12
2 D-13
2 L-24
2 L-28
2 L-27
2 L-26
2 L-25
0.5 BLK
0.5 BLK
0.5 BLK
0.5 BLK
0.5 BLK
0.5 BLK
0.5 BLK
2 L-21 J/C4
1 4 3
0.5 BLK
1 L-22 J/C5
3 2 4
0.5 BLK
1 H-31
1 H-32
6 H-45
0.5 GRY
0.5 GRY
0.5 GRY
7 B-507 J/C 10P BASE 3
1
8 B-506 J/C 10P BASE 2
7
10
2 GRY
2 GRY
W/S-18
3 BLK
3 BLK
Refer to Ground Distribution
Refer to Ground Distribution
B-221
B-55
LNWH80XF008101


Stoplight Relay
0.5 BLU
3 B-136
Sub J/B1
C
D
F
G
5 B-136
3 B-137
12 B-136
8 B-135
0.5 VIO
0.5 BRN
0.5 LT BLU
0.5 VIO
Transmission Control Module
Transmission Control Module
0.5 VIO
5 H-88
5 H-81
17
3 H-81
EHCU
0.5 GRN
ECM
0.5 GRN
0.85 RED/BLU
0.5 GRN/BLK
0.5 GRN
Automatic Transmission
Select Position Switch
J-122
9
0.85 RED/BLU
0.85 RED/BLU
Marker Light Relay
0.85 GRN/RED
Towing Converter
0.5 GRN/BLK
0.5 GRN/BLK
0.5 GRN/RED
0.5 GRN
0.5 GRN/WHT
1 H-101
28
5
3
2 H-101
Back Buzzer
Upfitter Install
J-111
J-111
2
1
0.5 RED/BLU
0.5 GRN/BLK
0.85 RED/BLU
0.85 RED/BLU
0.5 GRN/RED
0.5 GRN
0.5 GRN/WHT
1
6
5
2
8 H-66
0.5 GRN/RED
0.5 GRN
0.5 GRN/WHT
0.5 GRN/RED
0.5 RED/BLU
0.5 GRN/RED
0.5 GRN
0.5 GRN/BLK
0.5 RED/BLU
0.5 RED/BLU
0.5 GRN
1 J-71
5
1
2
3 J-73
4
5
1
2
3 J-74
License Plate Light
Back Light
Tail Light
Stop Light
Turn Light
Rear Combi-nation Light LH
Back Buzzer
Back Light
Tail Light
Stop Light
Turn Light
Rear Combi-nation Light RH
1 J-72
6 J-73
6 J-74
1.25 BLK
0.5 BLK
1.25 BLK
0.5 BLK
1.25 BLK
7 H-66
1.25 BLK
0.5 BLK
W/S-6
1.25 BLK
Refer to Ground Distribution
J-109
LNWG80XF003701


HOT AT ALL TIMES
HOT IN ON
Cab J/B1
F-12 Brake Lamps 10A
F-20 ECM 10A
E
3
2 X-1
6 B-23
5
10 B-19
Marker Light Relay
Stoplight Relay
0.85 GRN/ RED
4 H-82
1.25 YEL
5
1 X-1
12
4 B-22
1 B-18
0.5 BRN
0.5 BLU
0.5 VIO
11 B-134
2 B-132
3 B-136
16 B-135
Sub J/B1
F
G
Sub J/B1
5 B-133
10 B-134
16
14 B-136
6 B-131
1 B-132
12 B-136
9 B-132
0.5 LT BLU
0.5 LT GRN
0.5 VIO
0.5 BLU
0.5 GRN/ RED
0.5 GRN/ RED
0.5 VIO
0.5 BLU
0.5 BRN
0.5 LT BLU
0.5 VIO
30
31 B-105
3 H32
3 H31
Rear Combination Light RH
Turn RH
Turn LH
IP Cluster
0.5 GRN/ RED
0.5 GRN/ RED
4 B-105
1 B-72
1 B-73
1 D-43
1 D-41
1 B-71
1 B-70
4
2 B-211
Front Turn Light LH
Front Turn Light RH
Side Marker Light RH
Side Marker Light LH
Front Position Light RH
Front Position Light LH
Stoplight Switch
2 B-72
2 B-73
2 D-43
2 D-41
2 B-71
2 B-70
1
3 B-211
0.5 GRY
0.5 GRY
0.5 GRY
0.5 BLK
0.5 BLK
0.5 GRY
0.5 GRY
0.5 GRY
0.5 LT GRN
5 H-87
15 H-92
22 H-80
0.5 GRY
0.5 GRY
0.5 RED/ WHT
ECM
W/S-13
W/S-16
W/S-11
9
3
B-506 J/C 10P BASE 2
10
2 GRY
2 BLK
1.25 GRY
2 BLK
9
B-49 Earth Joint 10P2
3
3 BLK
10
5
6
B-48 Earth Joint 10P1
4
10
3 BLK
3 BLK
3 BLK
3 BLK
3 BLK
W/S-18
Refer to Ground Distribution
Refer to Ground Distribution
Refer to Ground Distribution
Refer to Ground Distribution
B-52
B-53
B-221
B-55
LNWG80XF003801

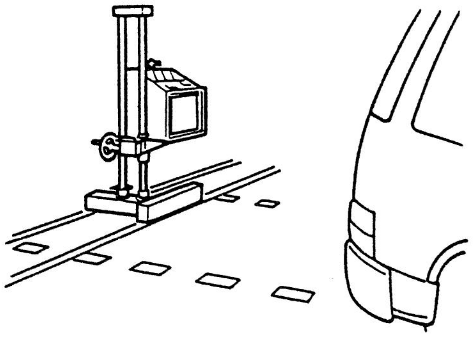
Repair Instructions

Headlamp Aiming

Aiming of Headlight

Place the unloaded vehicle on a level surface and check to see if the inflation pressure of the tires is correct, the lenses are clean, and the battery is sufficiently charged. Adjust the aim with the headlight tester.

When adjusting, follow the procedure of the tester manufacturer.

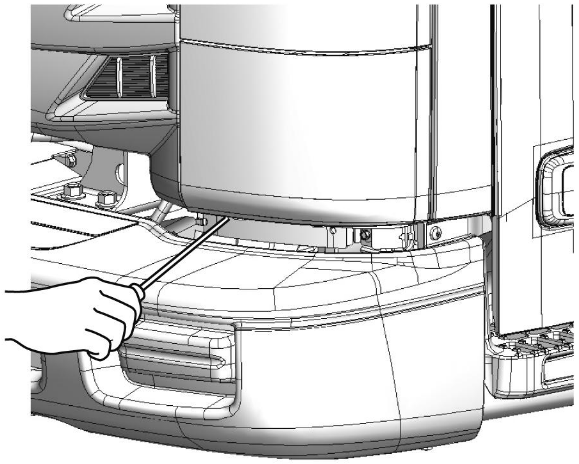


LNW38ASH006101

Vertical Adjustment

Insert the tip of a screwdriver into the hole beneath the headlight (the shaft of the screwdriver must be slanted up) until entering the space between teethe of the adjusting screw. Turn the gear wheel to adjust headlight focus up or down.

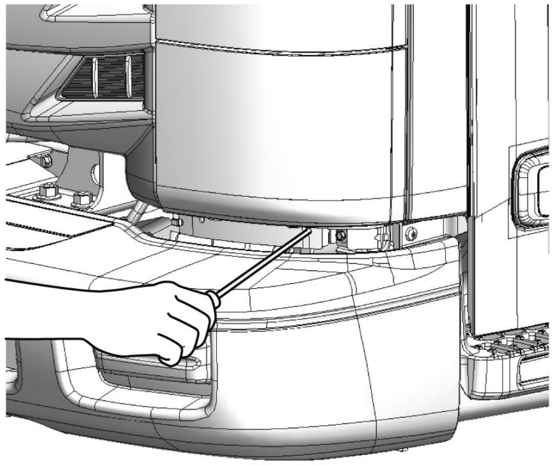
Two vertical aim gear wheels should be turned in the same direction at the same time to adjust aiming.



LNWG9ASH000401

Horizontal Adjustment

Insert the tip of a screwdriver into the hole beneath the headlight (the shaft of the screwdriver must be slanted up) until entering the space between teethe of the adjusting gear wheel. Turn the gear wheel to adjust headlight focus to the left or right.



LNWG9ASH000501

Front Turn Signal Lamp Bulb Replacement

Removal Procedure

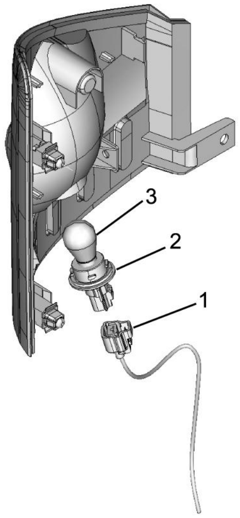
Warning: **Refer to CELL Link Error - Link target cell (cell ID 178001) is invalid for this publication..**

1. Disconnect the battery ground cable.

   Note:

   - Do not disconnect within 3 minute after turning OFF the ignition switch.
   - The ECM may malfunction if the battery cable is disconnected within 3 minutes.

2. Remove the front turn signal light. Refer to Front Turn Signal Lamp Replacement.
3. Remove the front turn signal light bulb.
   - **3.1.** Remove the front turn signal light harness connector (1).
   - **3.2.** Turn the front turn signal light bulb socket (2) to the left to remove it.
   - **3.3.** Press the bulb (3) in and turn it to the left to remove it from the socket.



LNW780SH002401

Installation Procedure

Follow the removal procedure in the reverse order.

Front Turn Signal Lamp Replacement

Removal Procedure

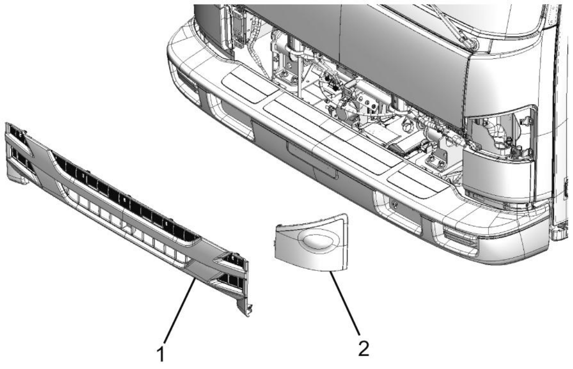
Warning: **Refer to CELL Link Error - Link target cell (cell ID 178001) is invalid for this publication..**

1. Disconnect the battery ground cable.

   Note:

   - Do not disconnect within 3 minute after turning OFF the ignition switch.
   - The ECM may malfunction if the battery cable is disconnected within 3 minutes.

2. Remove the front grill (1).
   - **2.1.** Remove the screw at the center or the front grill.
   - **2.2.** Remove the seven clips securing the front grill.
3. Remove the front turn signal light (2).
   - **3.1.** Remove the nut of turn signal light of front side.
   - **3.2.** Open the front door and unfasten the two screws through the space between the door and the cab using a Philips screwdriver.
   - **3.3.** Remove the front turn signal light harness connector.



LNWG9ASH000301

Installation Procedure

Follow the removal procedure in the reverse order.

Caution:

- Do not touch the glass portion of the new bulb with your fingers.
- If the bulb socket’s lock is insufficient, water may infiltrate the light’s interior and cause a malfunction.

Hazard Lamp and Turn Signal Lamp Flasher Replacement

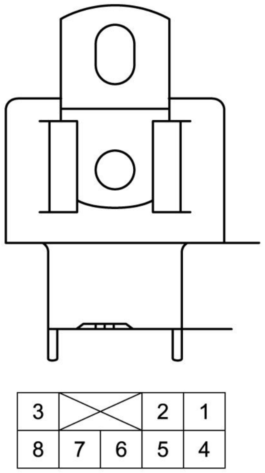
Inspection Procedure

Check the following circuits for an open circuit, short circuit (power supply and GND), and high resistance.

If any abnormality is found in the circuit, repair or replace the relevant circuit.

- Between the flasher unit terminal 1 and the cab J/B 1 terminal 4
- Between the flasher unit terminal 4 and the cab J/B 1 terminal 5
- Between the flasher unit terminal 3 and the front turn signal light (LH) terminal 1
- Between the flasher unit terminal 3 and the side turn signal light (LH) terminal 1
- Between the flasher unit terminal 3 and the rear combination light (LH) terminal 3
- Between the flasher unit terminal 2 and the front turn signal light (RH) terminal 1
- Between the flasher unit terminal 2 and the side turn signal light (RH) terminal 1
- Between the flasher unit terminal 2 and the rear combination light (RH) terminal 3
- Between the flasher unit terminal 8 and the hazard warning flasher switch terminal 3
- Between the flasher unit terminal 5 and the combination switch terminal 2
- Between the flasher unit terminal 6 and the combination switch terminal 3
- Between the flasher unit terminal 7 and the sub J/B 1 terminal 4

If the circuit and the switch are normal, replace the flasher unit.

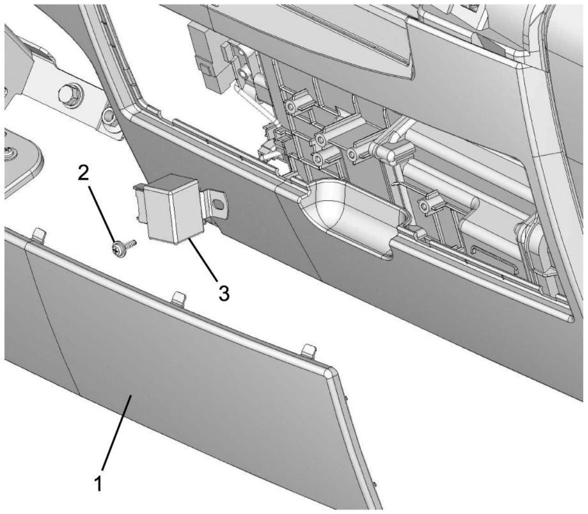


3			2	1
8	7	6	5	4

LNW780SH010401

Removal Procedure

1. Remove the relay box lid (1).
2. Remove the fixing screw (2).
3. Remove the flasher unit (3).

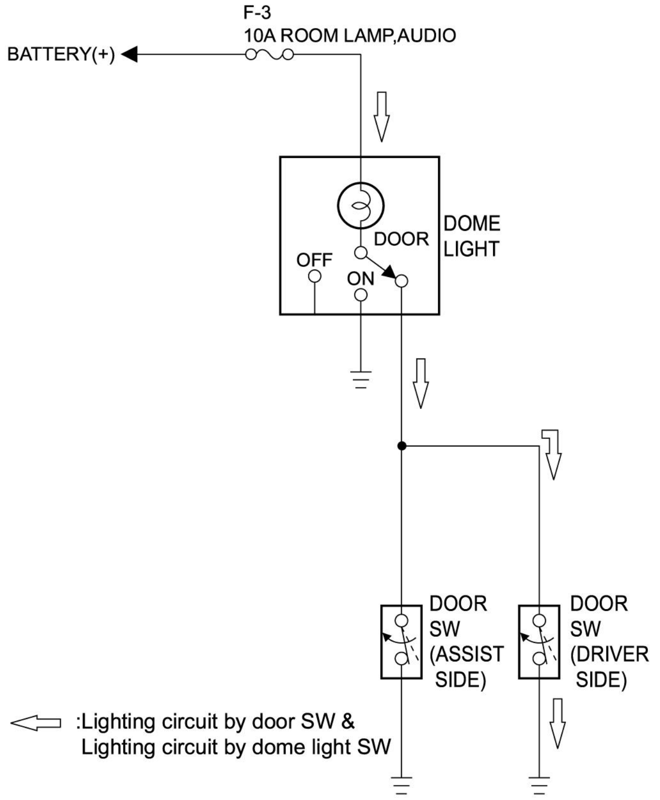


LNW780SH005601

Installation Procedure

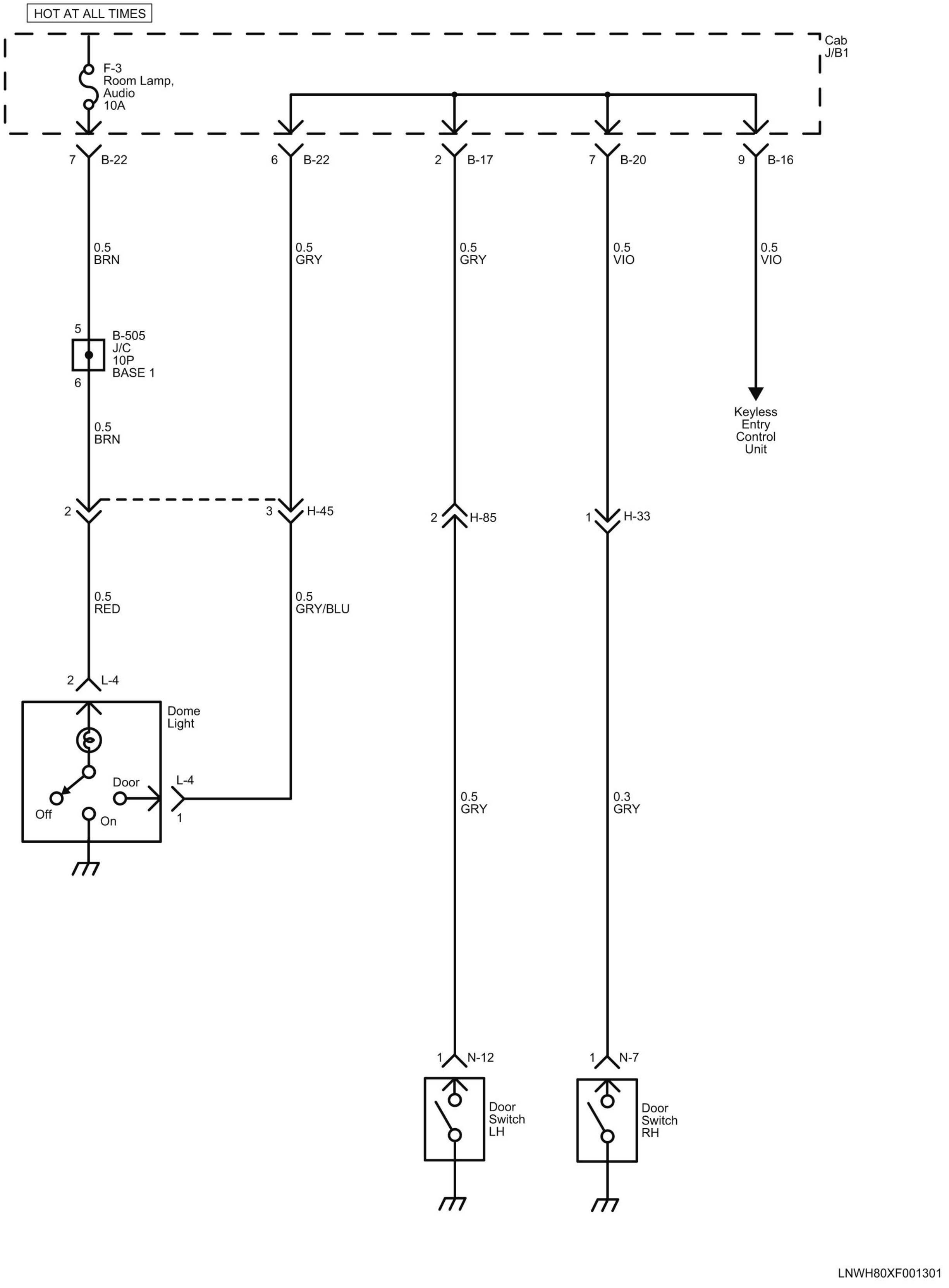
Follow the removal procedure in the reverse order.

Interior Lights Schematics


F-3
10A ROOM LAMP,AUDIO
BATTERY(+)
DOME LIGHT
DOOR
OFF
ON
DOOR SW (ASSIST SIDE)
DOOR SW (DRIVER SIDE)
:Lighting circuit by door SW &
Lighting circuit by dome light SW

NOTE: Arrow marks " ⇨ " indicate the direction of current

LNWD80LF000601


HOT AT ALL TIMES
Cab J/B1
F-3 Room Lamp, Audio 10A
7 B-22
6 B-22
2 B-17
7 B-20
9 B-16
0.5 BRN
0.5 GRY
0.5 GRY
0.5 VIO
0.5 VIO
5
B-505 J/C 10P BASE 1
6
0.5 BRN
Keyless Entry Control Unit
2
3 H-45
2 H-85
1 H-33
0.5 RED
0.5 GRY/BLU
2 L-4
Dome Light
Door
L-4
1
Off
On
0.5 GRY
0.3 GRY
1 N-12
1 N-7
Door Switch LH
Door Switch RH
LNWH80XF001301

Description and Operation

Wiper/Washer System Circuit Description

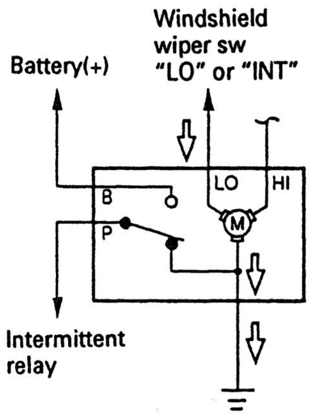
The circuit consists of the ignition switch, windshield wiper and washer switch, wiper motor, washer motor the intermittent relay horn switch and horn.

When the wiper and washer switch is turned on with starter switch on, the battery voltage is applied to the wiper motor to activate the wiper.

The washer motor squirts glass cleaning fluid while the washer switch is being pushed. The intermittent relay is used to control motion of the wiper.

Operation of Windshield Wiper Motor (When Wiper “LO” or “INT” Position)

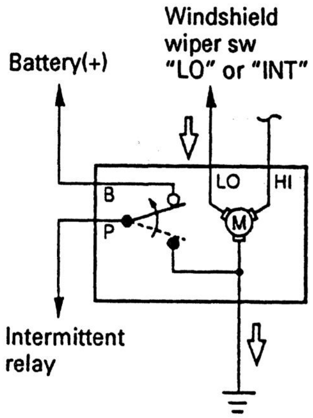
1. Condition of wiper switch is “LO” or “INT” position (Wiper motor is starting to operate)


Windshield
wiper sw
“LO” or “INT”
Battery(+)
B
P
LO
HI
M
Intermittent
relay

NOTE: Arrow marks " ⇨ " indicate the direction of current.

LNW38ASH009301

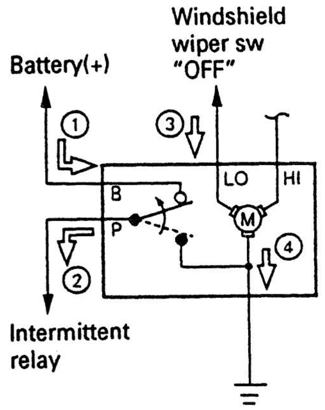
2. Condition of wiper motor is operating


Windshield
wiper sw
“LO” or “INT”
Battery(+)
B
P
LO
HI
M
Intermittent
relay

NOTE: Arrow marks " ⇨ " indicate the direction of current.

LNW38ASH009401

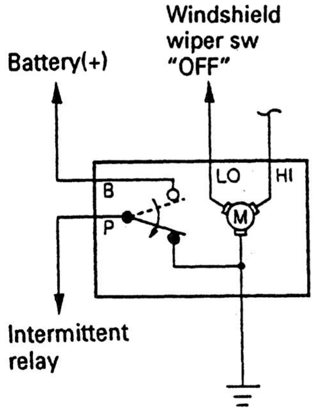
3. Condition of wiper switch is just "OFF" (Wiper motor is still operating until auto-stop position)


Windshield
wiper sw
"OFF"
Battery(+)
①
③
B
LO
HI
M
P
④
②
Intermittent
relay

NOTE: Arrow marks " ⇨ " indicate the direction of current.

LNW38ASH009501

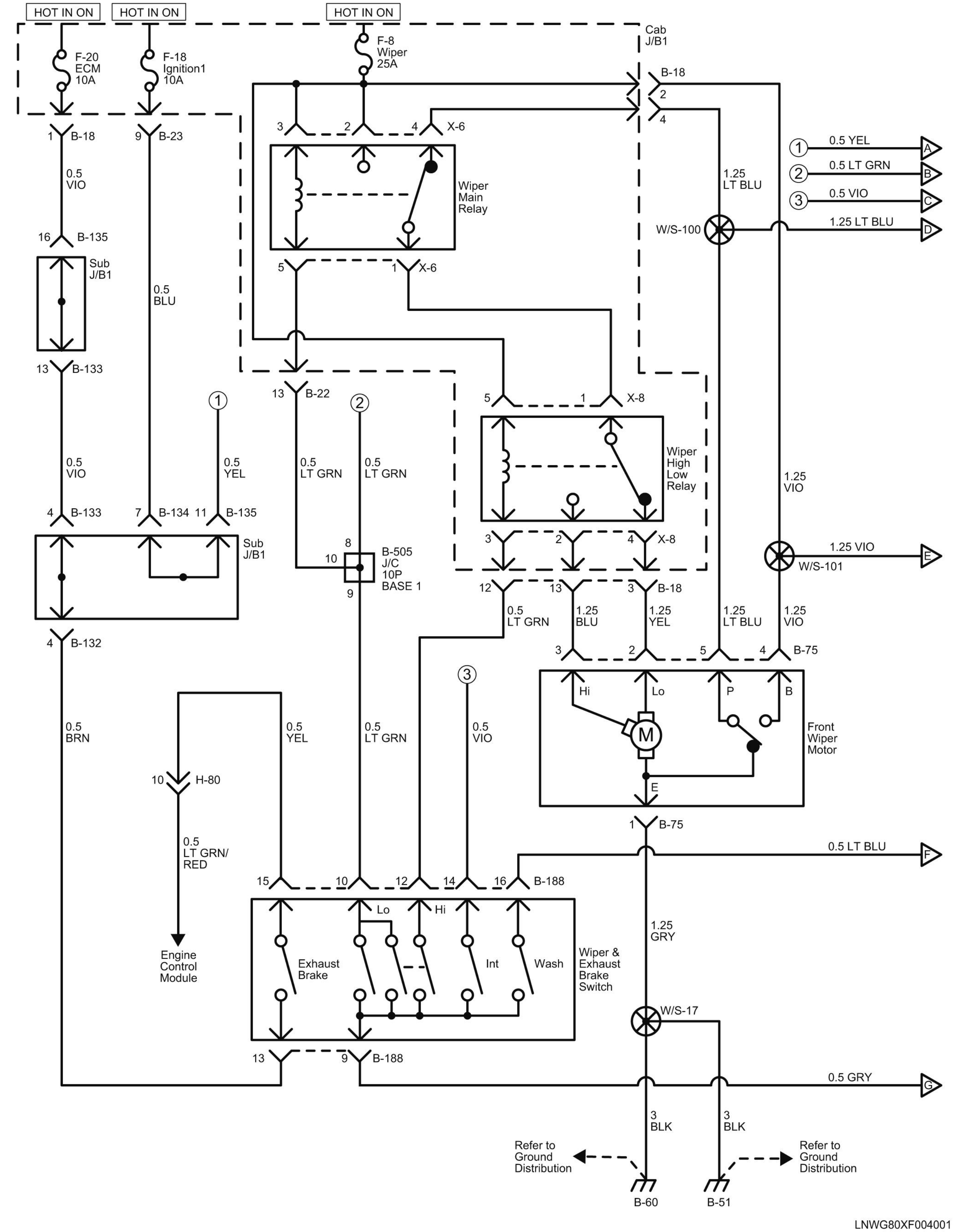
4. Wiper motor stops at auto-stop position

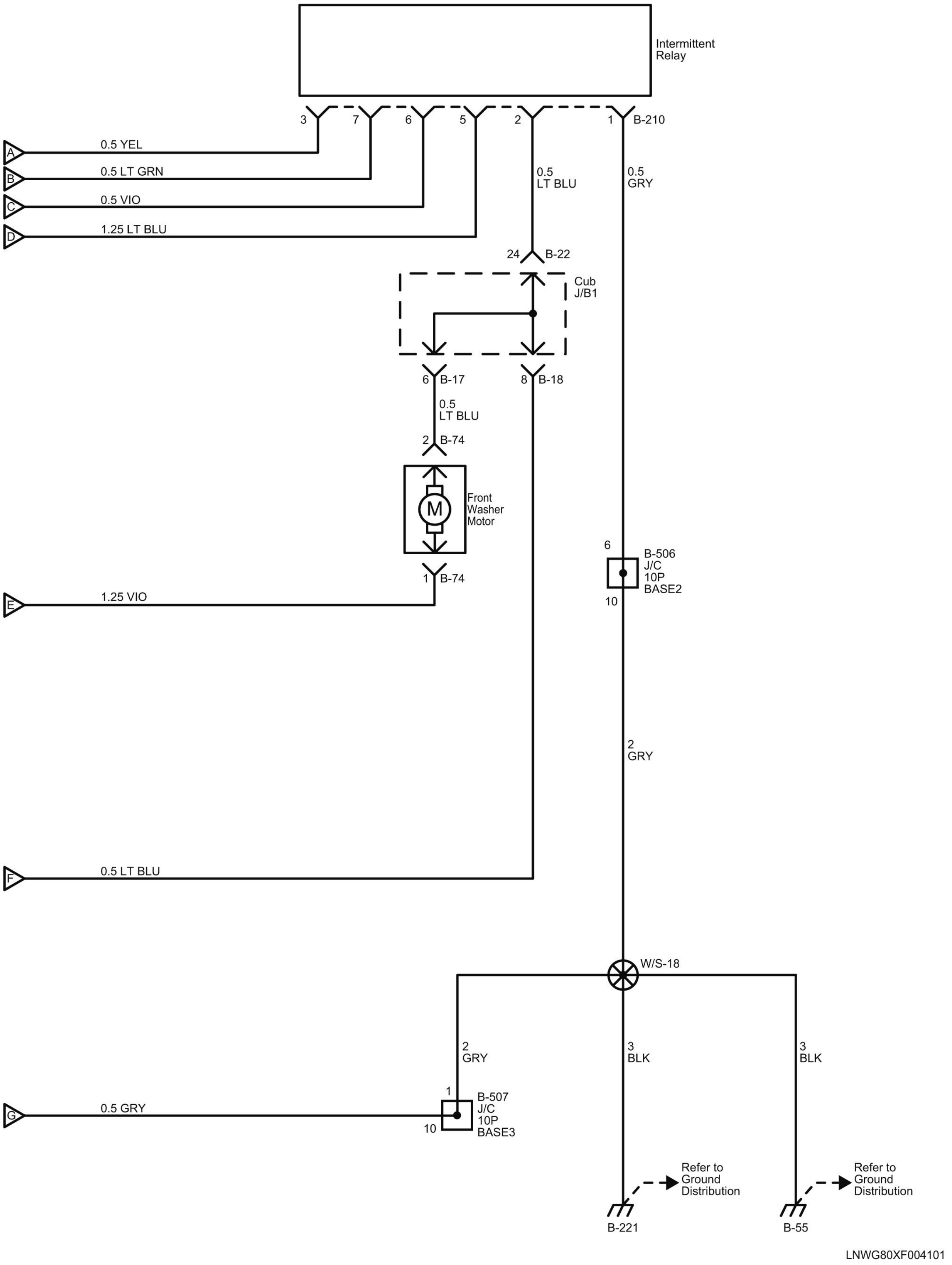

Windshield
wiper sw
"OFF"
Battery(+)
B
LO
HI
M
P
Intermittent
relay

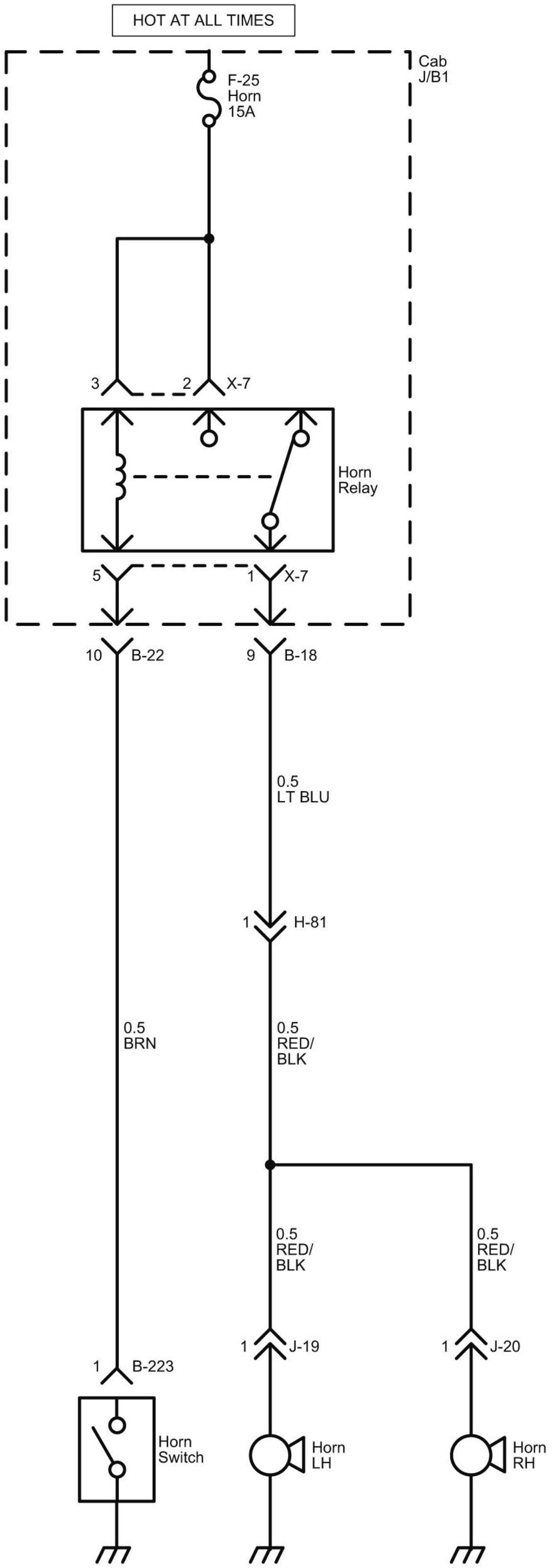
LNW38ASH009601

Schematic and Routing Diagrams

Wiper/Washer Schematics


HOT IN ON
HOT IN ON
HOT IN ON
F-20 ECM 10A
F-18 Ignition1 10A
F-8 Wiper 25A
Cab J/B1
B-18
2
4
1 B-18
9 B-23
3
2
4 X-6
Wiper Main Relay
5
1 X-6
0.5 VIO
16 B-135
Sub J/B1
0.5 BLU
13 B-133
13 B-22
1
2
0.5 VIO
0.5 YEL
0.5 LT GRN
0.5 LT GRN
4 B-133
7 B-134
11 B-135
Sub J/B1
8
10
B-505 J/C 10P BASE 1
9
4 B-132
1.25 LT BLU
W/S-100
1 0.5 YEL A
2 0.5 LT GRN B
3 0.5 VIO C
1.25 LT BLU D
5
1 X-8
Wiper High Low Relay
3
2
4 X-8
1.25 VIO
1.25 VIO E
W/S-101
12
13
3 B-18
0.5 LT GRN
1.25 BLU
1.25 YEL
1.25 LT BLU
1.25 VIO
3
2
5
4 B-75
Hi
Lo
P
B
M
E
Front Wiper Motor
1 B-75
0.5 LT BLU F
3
0.5 BRN
0.5 YEL
0.5 LT GRN
0.5 VIO
10 H-80
0.5 LT GRN/ RED
Engine Control Module
15
10
12
14
16 B-188
Lo
Hi
Exhaust Brake
Int
Wash
Wiper & Exhaust Brake Switch
1.25 GRY
W/S-17
13
9 B-188
0.5 GRY G
3 BLK
3 BLK
Refer to Ground Distribution
Refer to Ground Distribution
B-60
B-51
LNWG80XF004001


Intermittent Relay
3
7
6
5
2
1
B-210
A
0.5 YEL
B
0.5 LT GRN
C
0.5 VIO
D
1.25 LT BLU
0.5 LT BLU
0.5 GRY
24
B-22
Cub J/B1
6
B-17
8
B-18
0.5 LT BLU
2
B-74
M
Front Washer Motor
1
B-74
E
1.25 VIO
6
B-506 J/C 10P BASE2
10
2 GRY
F
0.5 LT BLU
W/S-18
2 GRY
3 BLK
3 BLK
1
B-507 J/C 10P BASE3
G
0.5 GRY
10
Refer to Ground Distribution
Refer to Ground Distribution
B-221
B-55
LNWG80XF004101


HOT AT ALL TIMES
Cab J/B1
F-25 Horn 15A
3
2
X-7
Horn Relay
5
1
X-7
10
B-22
9
B-18
0.5 LT BLU
1
H-81
0.5 BRN
0.5 RED/ BLK
0.5 RED/ BLK
0.5 RED/ BLK
1
J-19
1
J-20
1
B-223
Horn Switch
Horn LH
Horn RH

LNWG80XF010101

Diagnostic Information and Procedures

Horn System Diagnosis

Horn Does Not Sound

Visual and Physical Checks

Check and repair the following items:

- Battery voltage
  If a problem found, charge the battery or replace the battery.
- Fuses
  If the fuse continues to open, repair the short to ground on one of the circuits that is fed by the fuse or replace the shorted attached component.
- Ground terminals
  If an intermittent, a poor connection or corrosion is found, repair the connection or clean the terminal.
  - Electrical connections or wiring
  - Check for poor mating of the connector halves, or terminals not fully seated in the connector body, backed-out.
  - Check for improperly formed or damaged terminals. Carefully reform or replace all the connector terminals in the problem circuit to ensure the proper contact tension.
  - Check for poor terminal to wire connections. This requires removing the terminal from the connector body to check.
- Improper installation of non-factory or aftermarket add on accessories such as lights, 2-way radios, amplifiers, electric motors, remote starters, alarm systems, cell phones, etc. (These accessories may lead to an emission related failure while in use, but do not fail when the accessories are not in use.)
  If a problem found, remove accessories or correct the installation.

Components Check

Check and repair the following items:

- Fuse
  - F-25 Horn (15A)
    Refer to Fuse, Fusible Link, and Slow-Blow Fuse Description.
    If the fuse continues to open, repair the short to ground on one of the circuits that is fed by the fuse or replace the shorted attached component.
- Horn switch
  Refer to CELL Link Error - Link target cell (cell ID 281980) is invalid for this publication..
  If a problem found, replace the combination switch.
- Relay
  - X-7 Horn Relay
    Refer to CELL Link Error - Link target cell (cell ID 281982) is invalid for this publication..
    If a problem found, replace the relay.
- Horn
  Refer to CELL Link Error - Link target cell (cell ID 281977) is invalid for this publication...
  If an open or improper installation found, replace the bulb or correct the installation.

Circuit Check

Check the following circuits for an open, short to ground, short to battery or ignition voltage and high resistance. If a problem found, repair or replace as necessary.

- Between the Horn fuse (F-25) and the Horn relay.
- Between the Horn relay and the horn switch.
- Between the Horn relay and the horns.

Horn Does Not Shut Off

Visual and Physical Checks

Check and repair the following items:

- Battery voltage
  If a problem found, charge the battery or replace the battery.
- Fuses
  If the fuse continues to open, repair the short to ground on one of the circuits that is fed by the fuse or replace the shorted attached component.
- Ground terminals

If an intermittent, a poor connection or corrosion is found, repair the connection or clean the terminal.

- Electrical connections or wiring
  - Check for poor mating of the connector halves, or terminals not fully seated in the connector body, backed-out.
  - Check for improperly formed or damaged terminals. Carefully reform or replace all the connector terminals in the problem circuit to ensure the proper contact tension.
  - Check for poor terminal to wire connections. This requires removing the terminal from the connector body to check.
- Improper installation of non-factory or aftermarket add on accessories such as lights, 2-way radios, amplifiers, electric motors, remote starters, alarm systems, cell phones, etc. (These accessories may lead to an emission related failure while in use, but do not fail when the accessories are not in use.)

  If a problem found, remove accessories or correct the installation.

Components Check

Check and repair the following items:

- Horn switch

  Refer to CELL Link Error - Link target cell (cell ID 281980) is invalid for this publication..

  If a problem found, replace the combination switch.
- Relay
  - X-7 Horn Relay

    Refer to CELL Link Error - Link target cell (cell ID 281982) is invalid for this publication..

    If a problem found, replace the relay.

Circuit Check

Check the following circuits for an open, short to ground, short to battery or ignition voltage and high resistance. If a problem found, repair or replace as necessary.

- Between the Horn relay and the horn switch.
- Between the Horn relay and the horns.

Description and Operation

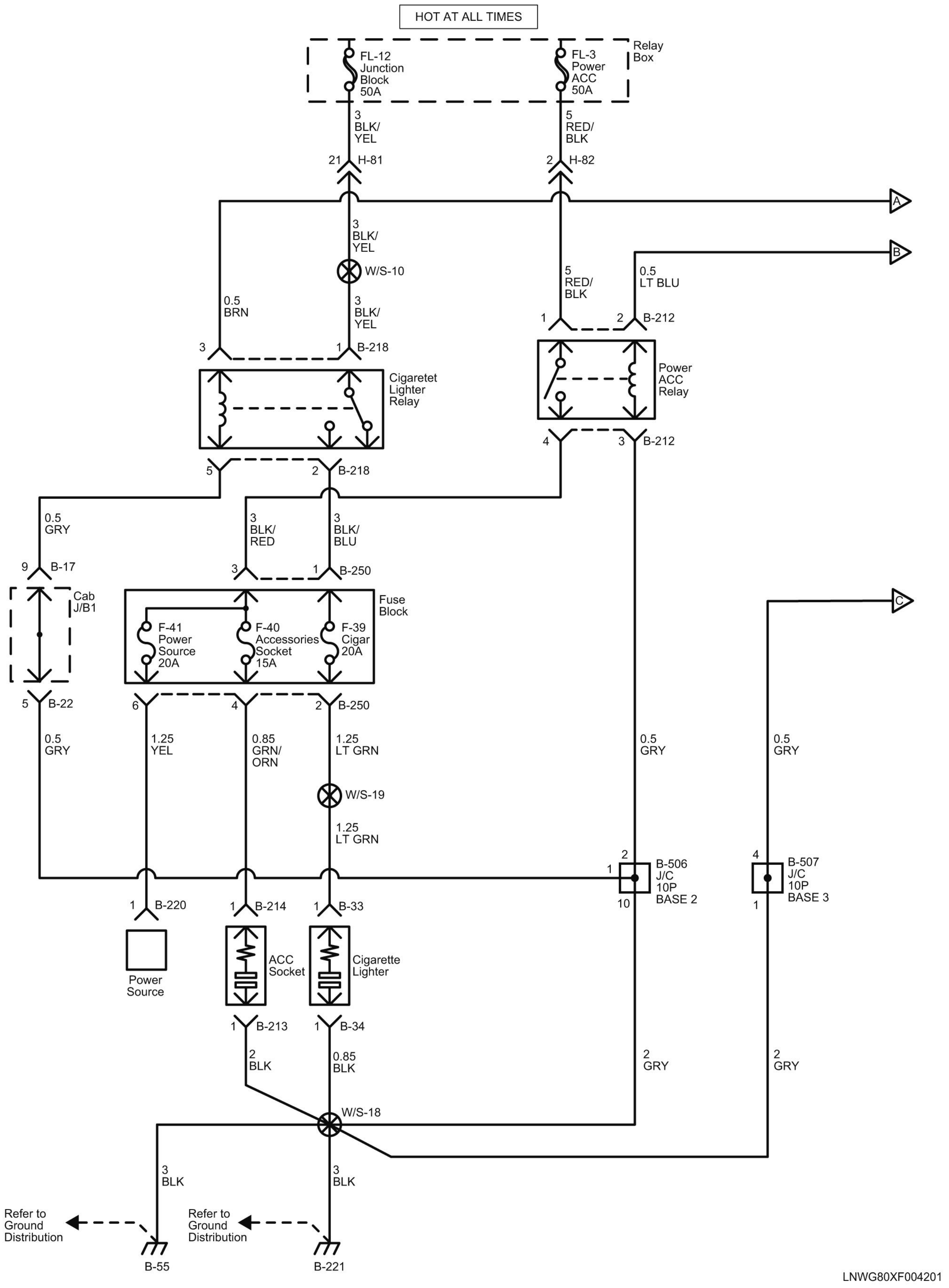
Radio and Cigarette Lighter Circuit Description

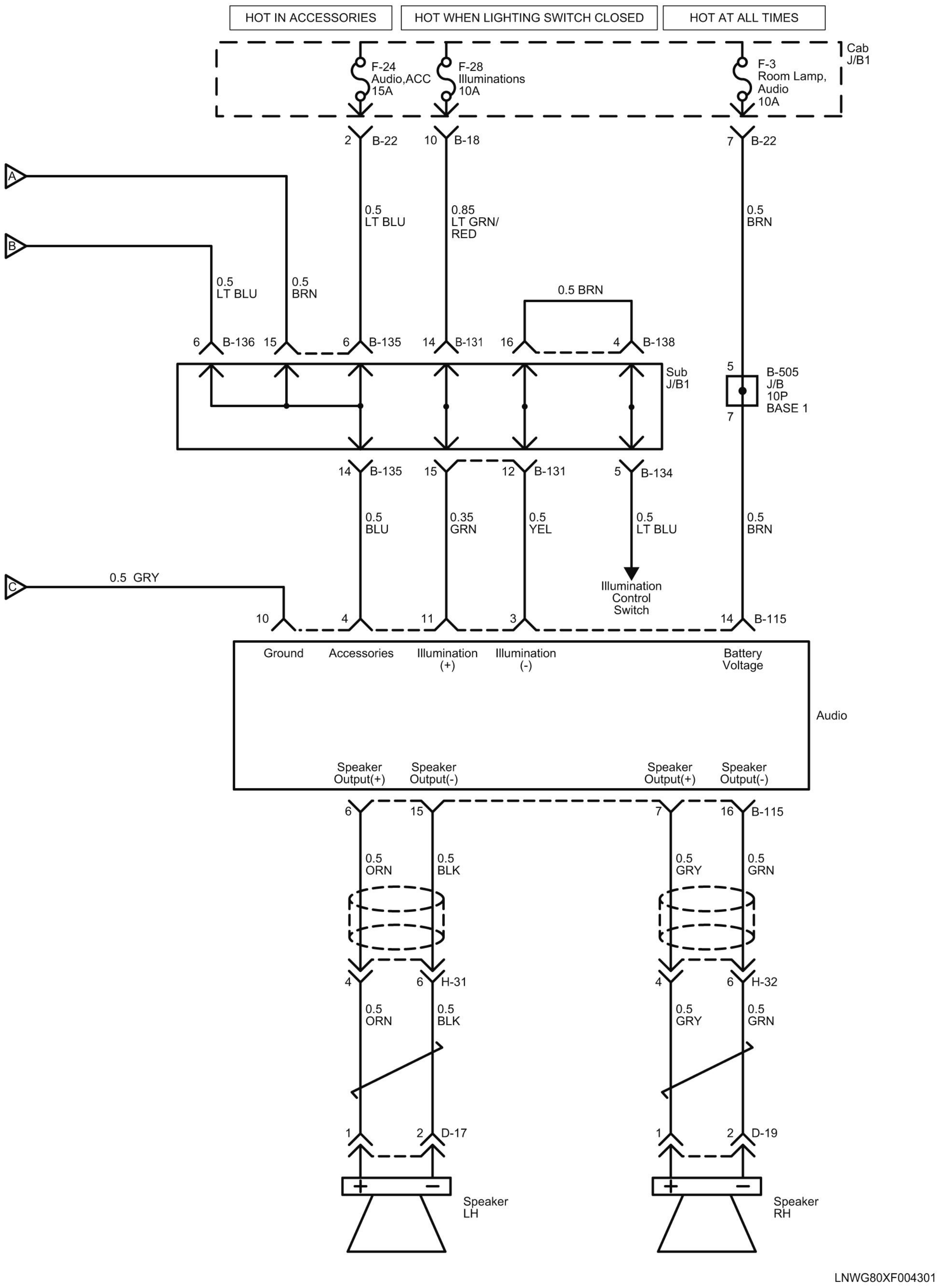
The circuit consists of the ignition switch, audio, cigarette lighter and the relay.

The audio circuit is designed for the current to flow through the receiver circuit when the audio switch is turned on with the ignition switch in “ACC” or “ON”. Current runs through the memory circuit of the audio regardless of the position of the ignition switch.

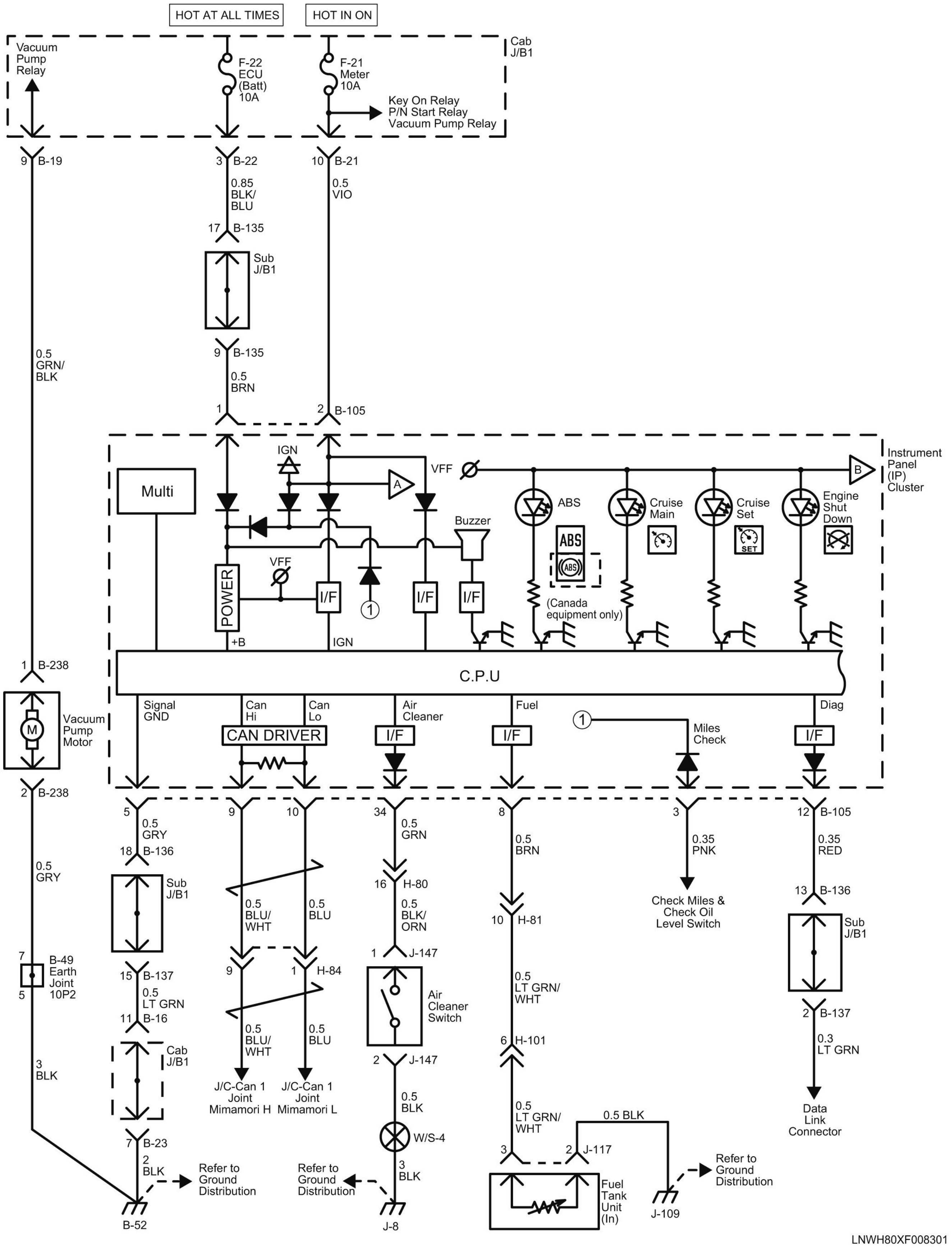
When the cigarette lighter is pushed in with the ignition switch at either “ACC” or “ON” position, a circuit is formed in the cigarette lighter case to heat the lighter coil. The cigarette lighter is spring back to its original position after the lighter coil is heated.

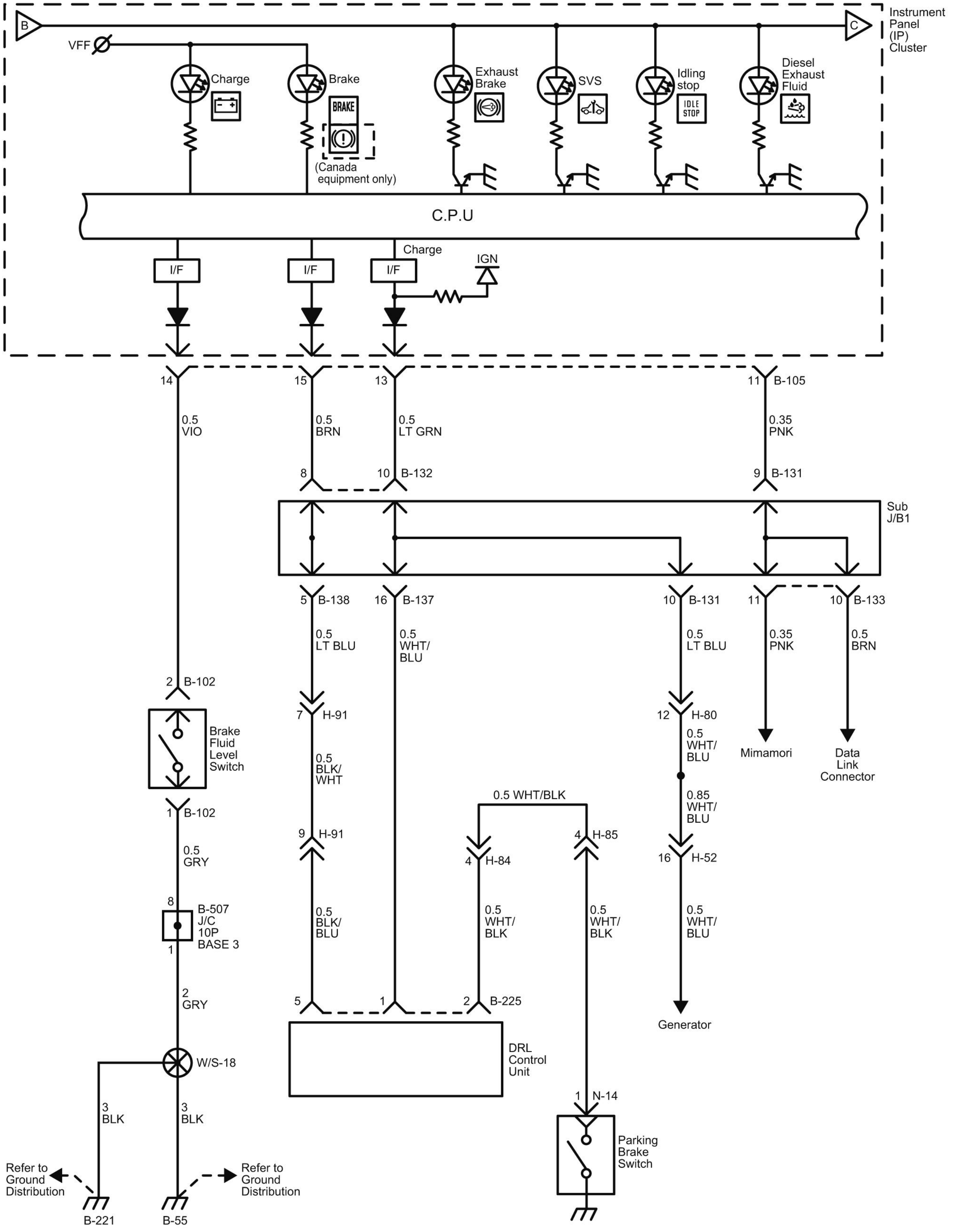
Radio and Cigarette Lighter Schematics


HOT AT ALL TIMES
FL-12 Junction Block 50A
FL-3 Power ACC 50A
Relay Box
3 BLK/ YEL
5 RED/ BLK
21 H-81
2 H-82
A
B
3 BLK/ YEL
W/S-10
3 BLK/ YEL
0.5 BRN
5 RED/ BLK
0.5 LT BLU
1 2 B-212
3 1 B-218
Cigaretet Lighter Relay
Power ACC Relay
4 3 B-212
5 2 B-218
0.5 GRY
3 BLK/ RED
3 BLK/ BLU
9 B-17
3 1 B-250
Cab J/B1
Fuse Block
F-41 Power Source 20A
F-40 Accessories Socket 15A
F-39 Cigar 20A
C
5 B-22
6 4 2 B-250
0.5 GRY
1.25 YEL
0.85 GRN/ ORN
1.25 LT GRN
0.5 GRY
0.5 GRY
W/S-19
1.25 LT GRN
2 1 10 B-506 J/C 10P BASE 2
4 1 B-507 J/C 10P BASE 3
1 B-220
1 B-214
1 B-33
Power Source
ACC Socket
Cigarette Lighter
1 B-213
1 B-34
2 BLK
0.85 BLK
2 GRY
2 GRY
W/S-18
3 BLK
3 BLK
Refer to Ground Distribution
Refer to Ground Distribution
B-55
B-221
LNWG80XF004201

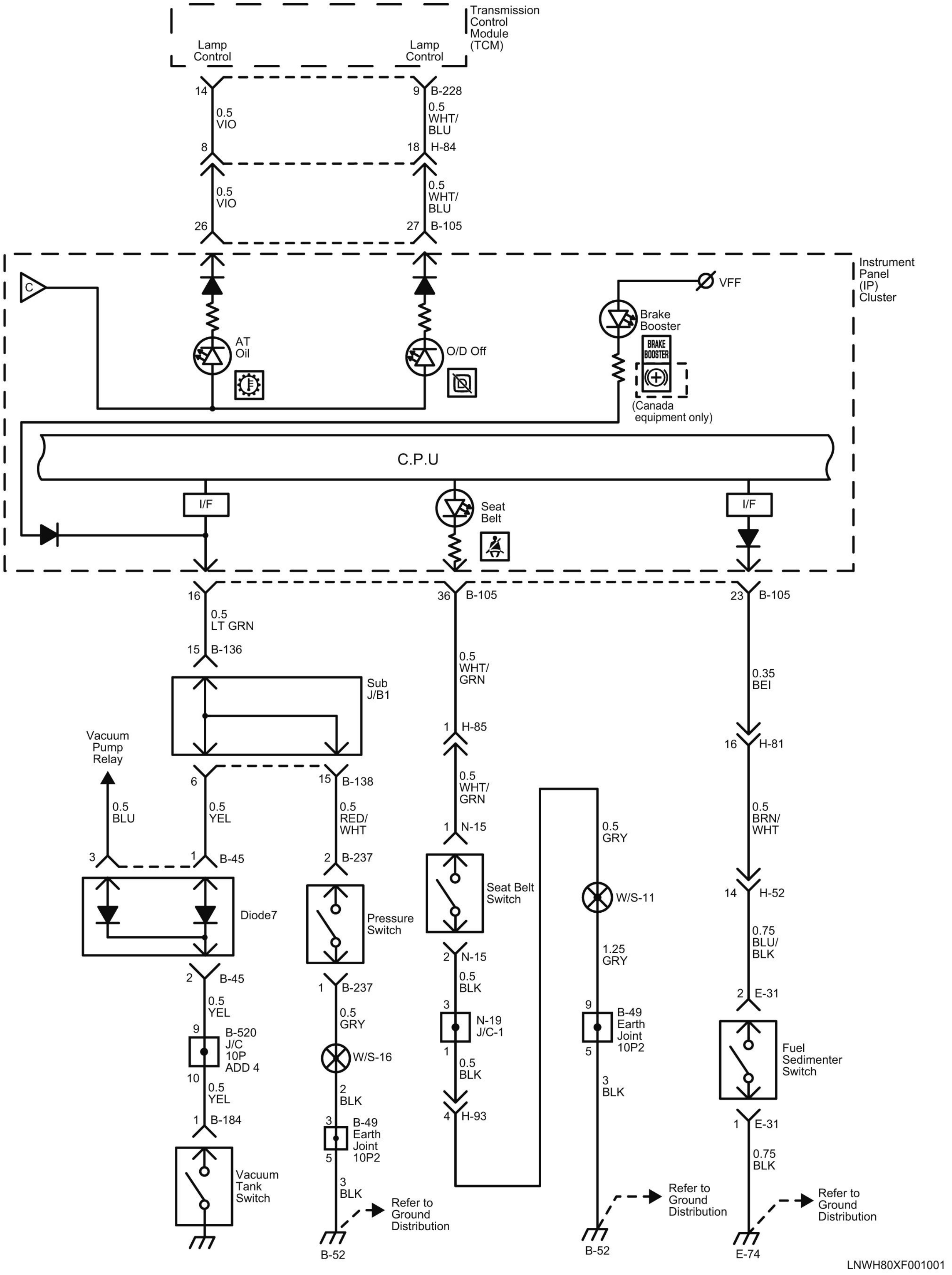

HOT IN ACCESSORIES
HOT WHEN LIGHTING SWITCH CLOSED
HOT AT ALL TIMES
Cab J/B1
F-24 Audio,ACC 15A
F-28 Illuminations 10A
F-3 Room Lamp, Audio 10A
2 B-22
10 B-18
7 B-22
A
B
0.5 LT BLU
0.5 LT GRN/ RED
0.5 BRN
0.85 LT GRN/ RED
0.5 LT BLU
0.5 BRN
0.5 BRN
6 B-136
15
6 B-135
14 B-131
16
4 B-138
Sub J/B1
5
B-505 J/B 10P BASE 1
7
14 B-135
15
12 B-131
5 B-134
0.5 BLU
0.35 GRN
0.5 YEL
0.5 LT BLU
0.5 BRN
Illumination Control Switch
C
0.5 GRY
10
4
11
3
14 B-115
Ground
Accessories
Illumination (+)
Illumination (-)
Battery Voltage
Audio
Speaker Output(+)
Speaker Output(-)
Speaker Output(+)
Speaker Output(-)
6
15
7
16 B-115
0.5 ORN
0.5 BLK
0.5 GRY
0.5 GRN
4
6 H-31
4
6 H-32
0.5 ORN
0.5 BLK
0.5 GRY
0.5 GRN
1
2 D-17
1
2 D-19
+
−
Speaker LH
+
−
Speaker RH
LNWG80XF004301

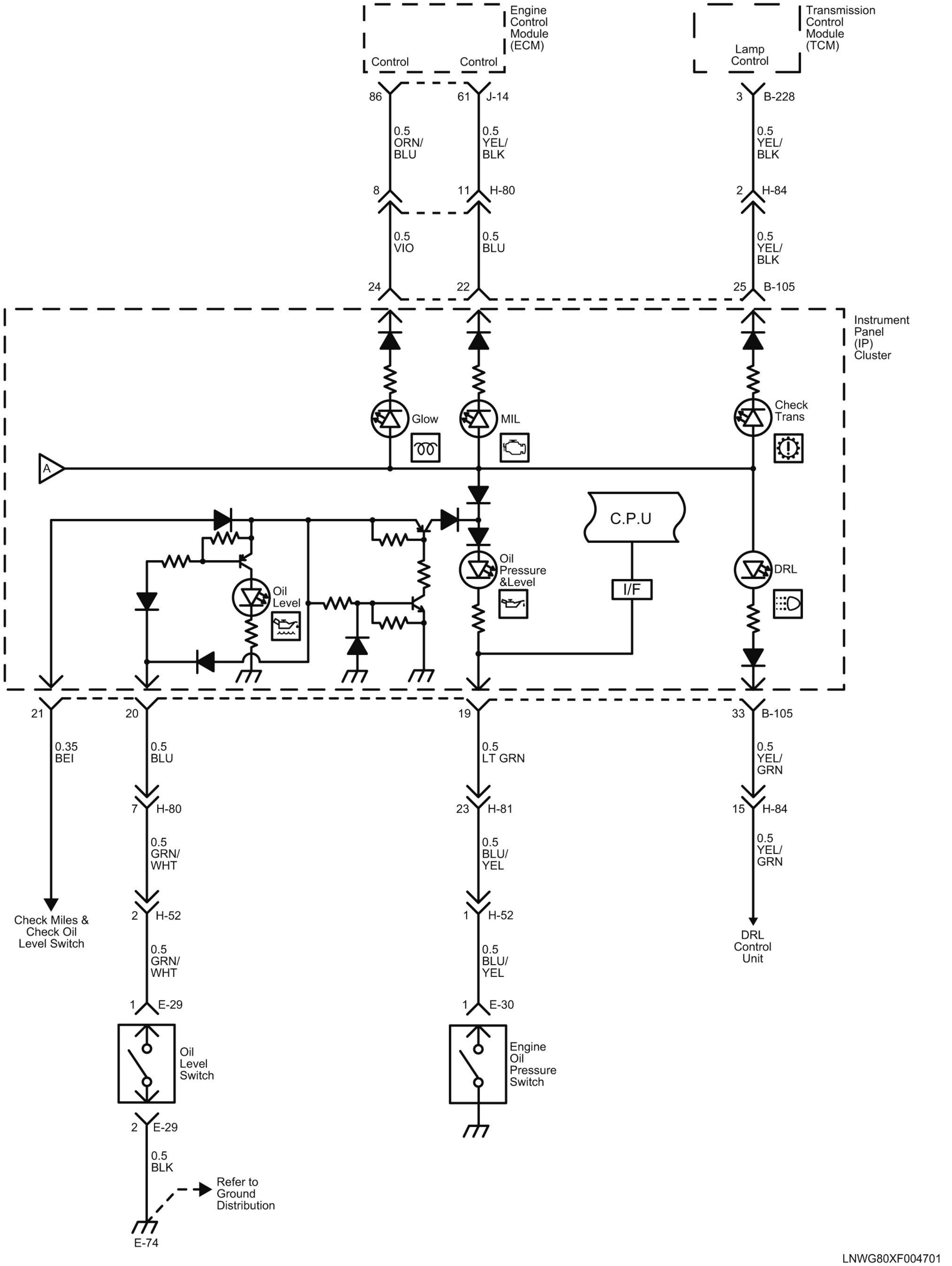
Instrument Cluster Schematics

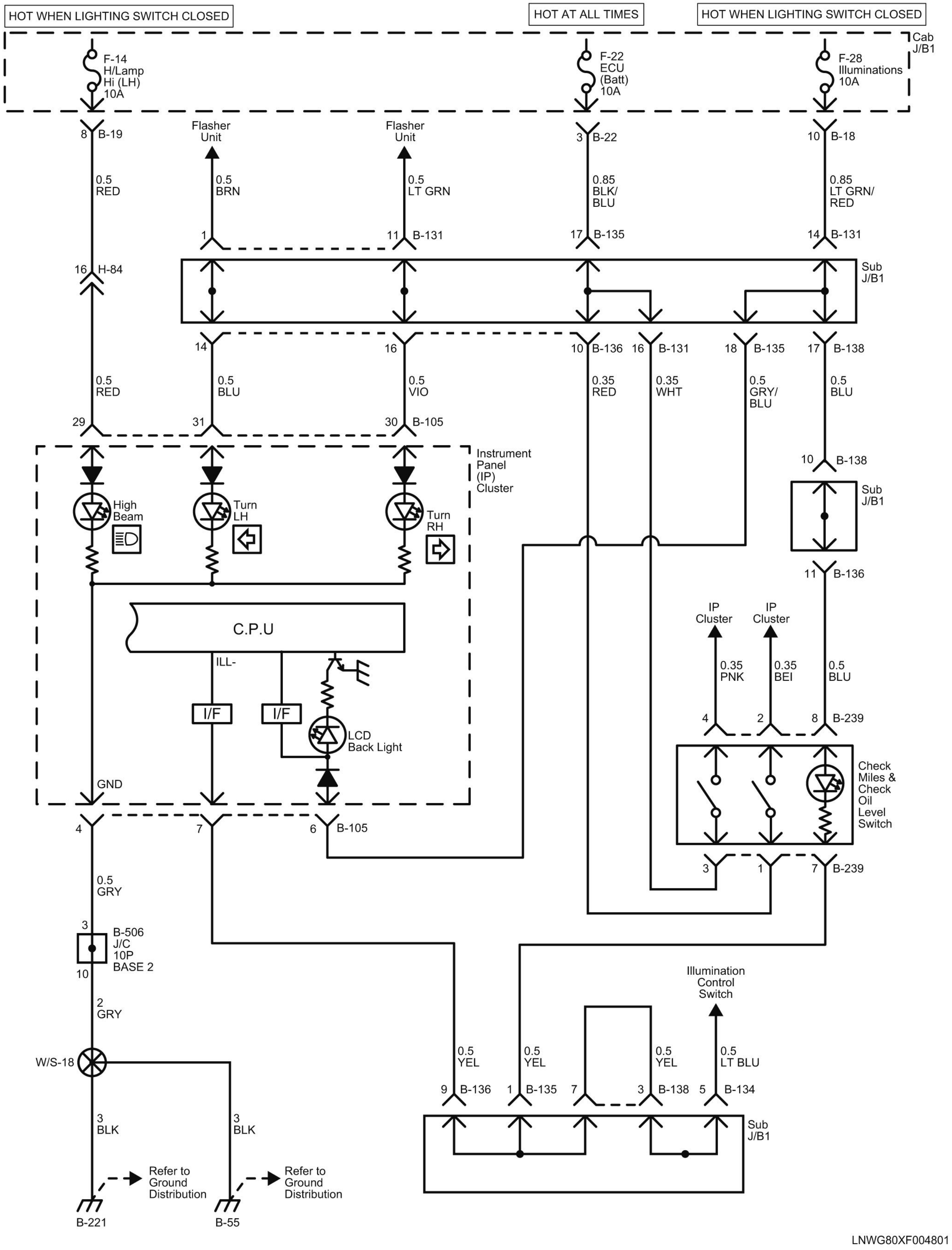

HOT AT ALL TIMES
HOT IN ON
Vacuum Pump Relay
F-22 ECU (Batt) 10A
F-21 Meter 10A
Cab J/B1
Key On Relay
P/N Start Relay
Vacuum Pump Relay
9 B-19
3 B-22
10 B-21
0.85 BLK/ BLU
0.5 VIO
17 B-135
Sub J/B1
9 B-135
0.5 GRN/ BLK
0.5 BRN
1
2 B-105
Instrument Panel (IP) Cluster
Multi
IGN
A
VFF
B
ABS
Cruise Main
Cruise Set
Engine Shut Down
Buzzer
ABS
(Canada equipment only)
VFF
POWER
I/F
I/F
I/F
1
+B
IGN
C.P.U
1 B-238
Vacuum Pump Motor
M
2 B-238
Signal GND
Can Hi
Can Lo
CAN DRIVER
Air Cleaner
I/F
Fuel
I/F
1
Miles Check
Diag
I/F
5
0.5 GRY
18 B-136
9
10
34
0.5 GRN
8
0.5 BRN
3
0.35 PNK
12 B-105
0.35 RED
0.5 GRY
Sub J/B1
0.5 BLU/ WHT
0.5 BLU
16 H-80
0.5 BLK/ ORN
10 H-81
Check Miles & Check Oil Level Switch
13 B-136
Sub J/B1
7 B-49 Earth Joint 10P2 5
15 B-137
0.5 LT GRN
11 B-16
9
1 H-84
1 J-147
Air Cleaner Switch
0.5 LT GRN/ WHT
2 B-137
0.3 LT GRN
Cab J/B1
0.5 BLU/ WHT
0.5 BLU
6 H-101
3 BLK
J/C-Can 1 Joint Mimamori H
J/C-Can 1 Joint Mimamori L
2 J-147
0.5 BLK
Data Link Connector
0.5 LT GRN/ WHT
0.5 BLK
W/S-4
7 B-23
2 BLK
Refer to Ground Distribution
Refer to Ground Distribution
3 BLK
3
2 J-117
Refer to Ground Distribution
Fuel Tank Unit (In)
J-109
B-52
J-8
LNWH80XF008301


B
C
Instrument Panel (IP) Cluster
VFF
Charge
Brake
BRAKE
(Canada equipment only)
Exhaust Brake
SVS
Idling stop
IDLE STOP
Diesel Exhaust Fluid
C.P.U
I/F
I/F
I/F
Charge
IGN
14
15
13
11
B-105
0.5 VIO
0.5 BRN
0.5 LT GRN
0.35 PNK
8
10
B-132
9
B-131
Sub J/B1
5
B-138
16
B-137
10
B-131
11
10
B-133
0.5 LT BLU
0.5 WHT/BLU
0.5 LT BLU
0.35 PNK
0.5 BRN
2
B-102
Brake Fluid Level Switch
7
H-91
12
H-80
Mimamori
Data Link Connector
0.5 BLK/WHT
0.5 WHT/BLU
0.85 WHT/BLU
1
B-102
0.5 WHT/BLK
9
H-91
4
H-84
4
H-85
16
H-52
0.5 GRY
8
B-507 J/C 10P BASE 3
1
0.5 BLK/BLU
0.5 WHT/BLK
0.5 WHT/BLK
0.5 WHT/BLU
2 GRY
5
1
2
B-225
Generator
W/S-18
DRL Control Unit
1
N-14
3 BLK
3 BLK
Parking Brake Switch
Refer to Ground Distribution
Refer to Ground Distribution
B-221
B-55

LNWH80XF000901


Transmission Control Module (TCM)
Lamp Control
Lamp Control
14
9
B-228
0.5 VIO
0.5 WHT/ BLU
8
18
H-84
0.5 VIO
0.5 WHT/ BLU
26
27
B-105
Instrument Panel (IP) Cluster
C
VFF
AT Oil
O/D Off
Brake Booster
BRAKE BOOSTER
(Canada equipment only)
C.P.U
I/F
Seat Belt
I/F
16
36
B-105
23
B-105
0.5 LT GRN
15
B-136
Sub J/B1
0.5 WHT/ GRN
1
H-85
0.35 BEI
16
H-81
Vacuum Pump Relay
6
15
B-138
0.5 BLU
0.5 YEL
0.5 RED/ WHT
0.5 WHT/ GRN
1
N-15
0.5 GRY
0.5 BRN/ WHT
3
1
B-45
2
B-237
Diode7
Pressure Switch
Seat Belt Switch
W/S-11
14
H-52
0.75 BLU/ BLK
2
B-45
1
B-237
2
N-15
0.5 BLK
1.25 GRY
2
E-31
0.5 YEL
0.5 GRY
9
B-520 J/C 10P ADD 4
10
3
N-19 J/C-1
1
9
B-49 Earth Joint 10P2
5
Fuel Sedimenter Switch
W/S-16
0.5 YEL
0.5 BLK
2 BLK
1
B-184
4
H-93
3 BLK
1
E-31
3
B-49 Earth Joint 10P2
5
0.75 BLK
Vacuum Tank Switch
3 BLK
Refer to Ground Distribution
Refer to Ground Distribution
Refer to Ground Distribution
B-52
B-52
E-74
LNWH80XF001001


Engine Control Module (ECM)
Control
Control
Transmission Control Module (TCM)
Lamp Control
86
61
J-14
3
B-228
0.5 ORN/ BLU
0.5 YEL/ BLK
0.5 YEL/ BLK
8
11
H-80
2
H-84
0.5 VIO
0.5 BLU
0.5 YEL/ BLK
24
22
25
B-105
Instrument Panel (IP) Cluster
Glow
MIL
Check Trans
A
C.P.U
Oil Pressure &Level
Oil Level
I/F
DRL
21
20
19
33
B-105
0.35 BEI
0.5 BLU
0.5 LT GRN
0.5 YEL/ GRN
7
H-80
23
H-81
15
H-84
0.5 GRN/ WHT
0.5 BLU/ YEL
0.5 YEL/ GRN
Check Miles & Check Oil Level Switch
2
H-52
1
H-52
DRL Control Unit
0.5 GRN/ WHT
0.5 BLU/ YEL
1
E-29
1
E-30
Oil Level Switch
Engine Oil Pressure Switch
2
E-29
0.5 BLK
Refer to Ground Distribution
E-74
LNWG80XF004701


HOT WHEN LIGHTING SWITCH CLOSED
HOT AT ALL TIMES
HOT WHEN LIGHTING SWITCH CLOSED
Cab J/B1
F-14 H/Lamp Hi (LH) 10A
F-22 ECU (Batt) 10A
F-28 Illuminations 10A
8 B-19
Flasher Unit
Flasher Unit
3 B-22
10 B-18
0.5 RED
0.5 BRN
0.5 LT GRN
0.85 BLK/ BLU
0.85 LT GRN/ RED
1
11 B-131
17 B-135
14 B-131
16 H-84
Sub J/B1
14
16
10 B-136
16 B-131
18 B-135
17 B-138
0.5 RED
0.5 BLU
0.5 VIO
0.35 RED
0.35 WHT
0.5 GRY/ BLU
0.5 BLU
29
31
30 B-105
Instrument Panel (IP) Cluster
10 B-138
Sub J/B1
High Beam
Turn LH
Turn RH
11 B-136
C.P.U
ILL-
I/F
I/F
LCD Back Light
GND
IP Cluster
IP Cluster
0.35 PNK
0.35 BEI
0.5 BLU
4
2
8 B-239
Check Miles & Check Oil Level Switch
4
7
6 B-105
3
1
7 B-239
0.5 GRY
3
B-506 J/C 10P BASE 2
10
2 GRY
W/S-18
Illumination Control Switch
0.5 YEL
0.5 YEL
0.5 YEL
0.5 LT BLU
9 B-136
1 B-135
7
3 B-138
5 B-134
Sub J/B1
3 BLK
3 BLK
Refer to Ground Distribution
Refer to Ground Distribution
B-221
B-55
LNWG80XF004801

Description and Operation

Instrument Cluster Description and Operation

Description of Function and Operation

The following gauges and various warnings / indicators (warning lamp and indicator lamp) are assembled to the instrument panel (IP) cluster.

- Speedometer
- Tachometer (engine rpm gauge)
- Fuel gauge
- Engine coolant temperature gauge
- Odometer/ Trip meter
- Shift indicator
- Multi-information display

These components cannot be replaced separately because they are integrated with the IP cluster.

In addition, they are communicating with the engine control module (ECM), the transmission control module (TCM), the MIMAMORI control unit and the electronic hydraulic control unit (EHCU) etc. via ECU and CAN.

Speedometer

Speedometer indicates the vehicle speed based on the vehicle speed signal outputted from the engine control module (ECM). The vehicle speed signal is corrected at ECM and inputted into the IP cluster through CAN communication.

Tachometer

Tachometer indicates the engine revolutions based on the engine revolution signal from ECM. The engine speed signal is a signal from the crankshaft position (CKP) sensor detected by ECM and inputted into the IP cluster through CAN communication.

Fuel Gauge

Fuel gauge indicates the remaining fuel level based on the signal of the fuel tank unit of the fuel tank. Fuel gauge indicates the remaining fuel level as "low" when the resistance of the fuel level detector of the fuel tank unit is high. The fuel gauge indicates the remaining fuel level as "high" when the resistance of the fuel level detector is low.

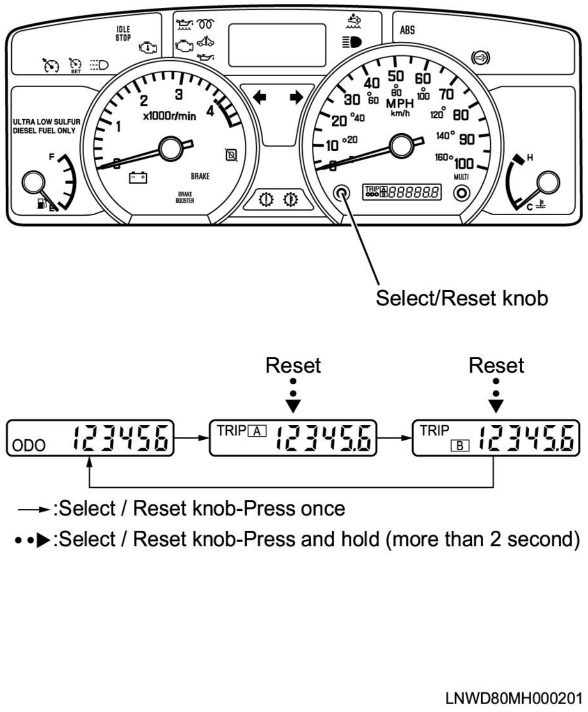
Engine Coolant Temperature Gauge

Engine coolant temperature gauge indicates the engine coolant temperature based on the engine coolant temperature signal from the ECM. The engine coolant temperature signal is a signal from the engine coolant temperature (ECT) sensor, which is detected by ECM and inputted into the thermometer through CAN communication.

Odometer/Trip Meter

Odometer/ trip meter calculate and display the mileage based on the vehicle speed signal from the ECM or from the vehicle speed sensor. Odometer/ trip meter will be displayed for 5 minutes after the ignition switch is turned "OFF".

Switch the display using the Select/ Reset knob operation.



Switching indication

- ODO > TRIP A > TRIP B > ODO

Hour Meter

The hour meter uses multi-information display to show accumulated engine operating time. The engine operating time is calculated by MIMAMORI control unit interlocked with the engine operation and inputted into the IP cluster through CAN communication. When the engine operation time data has not been obtained through CAN communication for 2 seconds or more, "ERROR" is displayed on the multi-information display.

Refer to "MIMAMORI control" in Section 8K Vehicle Control for resetting counters.

Multi-information Display

The display functions to display information, warning lamp, indicator lamp and maintenance information.

Information Display

- Total fuel consumption, Sectional fuel consumption, and Instantaneous fuel consumption.

  If the speedometer is graduated in both mile and kilometer, the fuel economy is indicated in miles per gallon (MPG).

  - Fuel consumption display is requested to the MIMAMORI and the data obtained through CAN communication will be displayed. When the fuel consumption indication data has not been obtained through CAN communication for 2 seconds or more, "ERROR" is displayed on the multi-information display.
  - "99.9MPG" is displayed when the total or the sectional fuel consumption data is 99.9MPG or more.
  - The total fuel consumption display is reset at the MIMAMORI. Refer to the "MIMAMORI System" in Section 8K Vehicle Control.
  - The sectional fuel consumption is reset when you reset the trip B.
  - The instantaneous fuel consumption is the fuel consumption at a certain moment while driving the vehicle.
- DPF display
  - When DPF display is selected, the DPF regeneration status signal is obtained through CAN communication from ECM. PM accumulation volume is displayed when there is no regeneration, and the DPF regeneration progress will be displayed when DPF is under regeneration.
  - PM accumulation volume is displayed in 6 levels. The display on the multi-information display increases as the accumulation volume increases.
  - DPF regeneration progress is displayed in 6 levels. The display on the multi-information display decreases as the regeneration progresses.
- Selective catalyst reduction (SCR) system display
  - The selective catalyst reduction (SCR) displays in a scale of 4 levels.
- Voltage meter
  - The voltage meter displays the battery voltage in a scale of 9 levels.
- Calendar and Clock

- Dimmer
  - The brightness of MID can be adjusted while the light control switch is OFF.

Warning Lamp and Indicator Lamp Display

- Air cleaner indicator lamp
- Exhaust system warning lamp
- Regeneration required warning lamp
- Selectable (switch) regeneration required warning lamp
- Regeneration in progress indicator lamp
- Checking PM level indicator lamp
- Low fuel warning lamp
- Water separator (fuel filter) warning lamp
- Engine overheat warning lamp
- Restart time(s) warning lamp
- No restart warning lamp
- Meter failure
- CAN system error
- Refill diesel exhaust fluid (DEF) warning lamp
- SCR system malfunction warning
- Incorrect diesel exhaust fluid (DEF) warning lamp

Maintenance Indications

- Engine oil and Filter indicator lamp
- Transmission and differential gear oil indicator lamp
- Starter indicator lamp
- Fuel filter indicator lamp
- Power steering fluid indicator lamp
- Tire rotation indicator lamp

The maintenance display displays the maintenance schedule for each item. Pre-set distances of each maintenance item are counted down and maintenance recommended periods are indicated by color changes from (Green) to (Amber) and warnings are displayed when turning the ignition switch to "ON". (The maintenance display is displayed when the vehicle speed is 16MPH (25km/h) or less.)

Diagnostic Information and Procedures

Engine Coolant Temperature Indicator Diagnosis

Engine Coolant Temperature Gauge Needle Does Not Move

Visual and Physical Checks

Check and repair the following items:

- Battery voltage

  If a problem found, charge the battery or replace the battery.

- Fuses

  If the fuse continues to open, repair the short to ground on one of the circuits that is fed by the fuse or replace the shorted attached component.

- Ground terminals

  If an intermittent, a poor connection or corrosion is found, repair the connection or clean the terminal.

- Electrical connections or wiring
  - Check for poor mating of the connector halves, or terminals not fully seated in the connector body, backed-out.
  - Check for improperly formed or damaged terminals. Carefully reform or replace all the connector terminals in the problem circuit to ensure the proper contact tension.
  - Check for poor terminal to wire connections. This requires removing the terminal from the connector body to check.

- Improper installation of non-factory or aftermarket add on accessories such as lights, 2-way radios, amplifiers, electric motors, remote starters, alarm systems, cell phones, etc. (These accessories may lead to an emission related failure while in use, but do not fail when the accessories are not in use.)

  If a problem found, remove accessories or correct the installation.

Components Check

Check and repair the following items:

- Engine coolant temperature (ECT) sensor

  Check the diagnostic trouble code (DTC) related to ECT sensor in the engine control system. Refer to Engine Control System.

  If the DTC is set, go to applicable DTC chart.

- Controller area network (CAN) communication.

  Check the diagnostic trouble code (DTC) related to CAN communication in the engine control system or transmission control system. Refer to Engine Control System.

- ECT gauge

  If a problem at the other parts and circuits not found, replace the instrument panel (IP) cluster.

Engine Coolant Temperature Gauge Reading is Too Low (or High)

Visual and Physical Checks

Check and repair the following items:

- Battery voltage

  If a problem found, charge the battery or replace the battery.

- Fuses

  If the fuse continues to open, repair the short to ground on one of the circuits that is fed by the fuse or replace the shorted attached component.

- Ground terminals

  If an intermittent, a poor connection or corrosion is found, repair the connection or clean the terminal.

- Electrical connections or wiring
  - Check for poor mating of the connector halves, or terminals not fully seated in the connector body, backed-out.
  - Check for improperly formed or damaged terminals. Carefully reform or replace all the connector terminals in the problem circuit to ensure the proper contact tension.
  - Check for poor terminal to wire connections. This requires removing the terminal from the connector body to check.

- Improper installation of non-factory or aftermarket add on accessories such as lights, 2-way radios, amplifiers, electric motors, remote starters, alarm systems, cell phones, etc. (These accessories may lead to an emission related failure while in use, but do not fail when the accessories are not in use.)

  If a problem found, remove accessories or correct the installation.

Components Check

Check and repair the following items:

- Engine coolant temperature (ECT) sensor

  Check the diagnostic trouble code (DTC) related to ECT sensor in the engine control system. Refer to Engine Control System.

If the DTC is set, go to applicable DTC chart.

- Controller area network (CAN) communication.

  Check the diagnostic trouble code (DTC) related to CAN communication in the engine control system or transmission control system. Refer to Engine Control System.

- Thermostat

  Refer to CELL Link Error - Link target cell (cell ID 281299) is invalid for this publication..

  If a problem found, replace the thermostat.

- ECT gauge

  If a problem at the other parts and circuits not found, replace the instrument panel (IP) cluster.

Needle Overshoots (or Goes Up to the "H" Range)

Visual and Physical Checks

Check and repair the following items:

- Battery voltage

  If a problem found, charge the battery or replace the battery.

- Fuses

  If the fuse continues to open, repair the short to ground on one of the circuits that is fed by the fuse or replace the shorted attached component.

- Ground terminals

  If an intermittent, a poor connection or corrosion is found, repair the connection or clean the terminal.

- Electrical connections or wiring
  - Check for poor mating of the connector halves, or terminals not fully seated in the connector body, backed-out.
  - Check for improperly formed or damaged terminals. Carefully reform or replace all the connector terminals in the problem circuit to ensure the proper contact tension.
  - Check for poor terminal to wire connections. This requires removing the terminal from the connector body to check.

- Improper installation of non-factory or aftermarket add on accessories such as lights, 2-way radios, amplifiers, electric motors, remote starters, alarm systems, cell phones, etc. (These accessories may lead to an emission related failure while in use, but do not fail when the accessories are not in use.)

  If a problem found, remove accessories or correct the installation.

Components Check

Check and repair the following items:

- Engine coolant temperature (ECT) sensor

  Check the diagnostic trouble code (DTC) related to ECT sensor in the engine control system. Refer to Engine Control System..

  If the DTC is set, go to applicable DTC chart.

- Controller area network (CAN) communication.

  Check the diagnostic trouble code (DTC) related to CAN communication in the engine control system or transmission control system .Refer to Engine Control System.

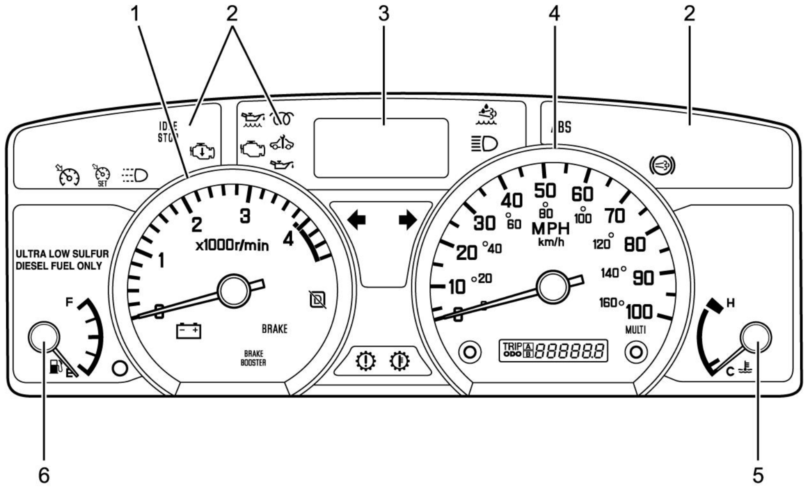
- ECT gauge

  If a problem at the other parts and circuits not found, replace the instrument panel (IP) cluster.

Description and Operation

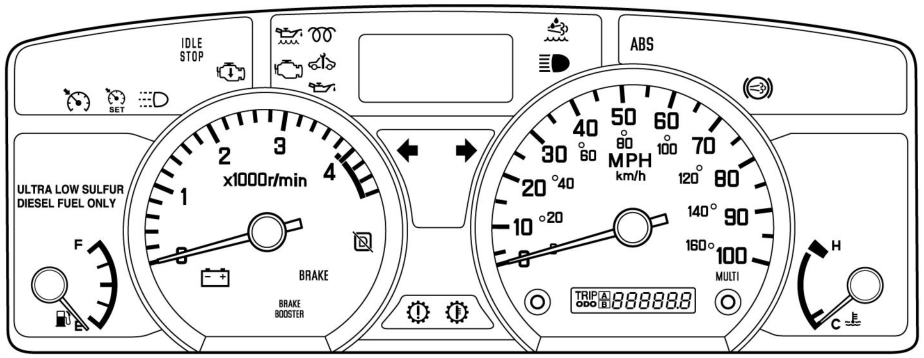
Instrument Cluster Description

LAYOUT FOR GAUGES, WARNING, INDICATOR AND ILLUMINATION LIGHTS (MID)

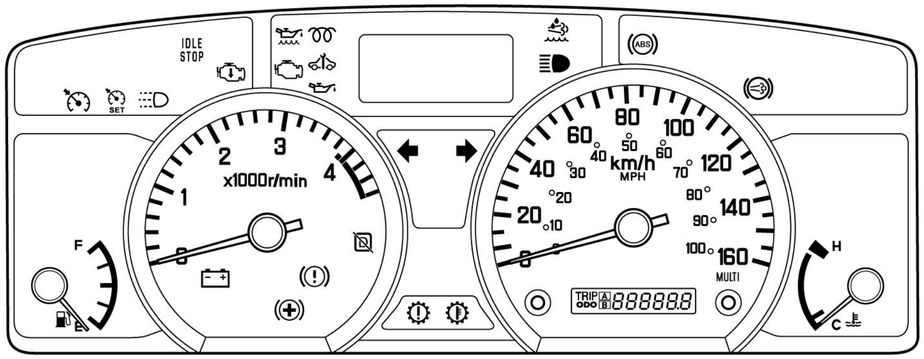

1
2
3
4
2
IDLE STOP
ABS
ULTRA LOW SULFUR DIESEL FUEL ONLY
F
0
1
2
3
4
x1000r/min
BRAKE
BRAKE BOOSTER
0
10
20
30
40
50
60
70
80
90
100
20
40
60
80
100
120
140
160
MPH
km/h
TRIP A B
MULTI
H
C
6
5

LNWD80MF000101

WARNING/INDICATOR (MID)


IDLE
STOP
SET
ULTRA LOW SULFUR
DIESEL FUEL ONLY
x1000r/min
BRAKE
BRAKE
BOOSTER
ABS
MPH
km/h
TRIP
ODO
MULTI
F
H
C

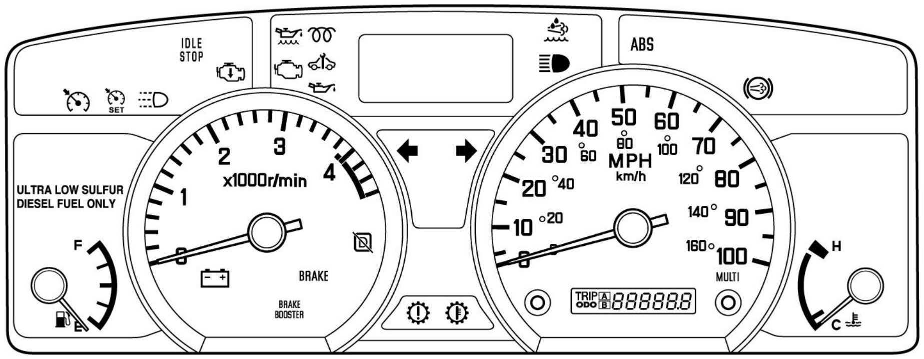
Canada equipment


IDLE
STOP
SET
x1000r/min
ABS
km/h
MPH
TRIP
ODO
MULTI
F
H
C

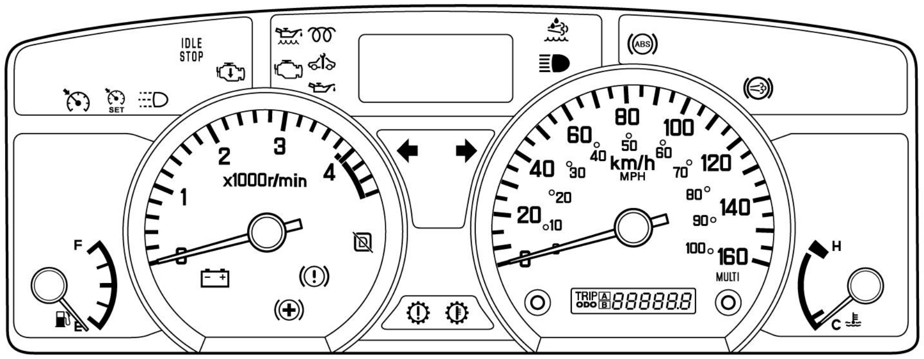
LNWD80LF000401

Visual Identification

Instrument Cluster Connector End View


IDLE STOP
ULTRA LOW SULFUR DIESEL FUEL ONLY
x1000r/min
BRAKE
BRAKE BOOSTER
ABS
MPH
km/h
TRIP ODO
MULTI
F
H
C

Canada equipment


IDLE STOP
x1000r/min
km/h
MPH
TRIP ODO
MULTI
F
H
C

LNWD80LF000401

B-105

Terminal No.	Connected to
1	Battery
2	Ignition
3	Miles Check
4	Power Ground
5	Signal Ground
6	Illumination (+)
7	Illumination (-)
8	Fuel Input
9	CAN - H

10	CAN - L
11	(Reserved : kw)
12	DIAG
13	Charge
14	Brake Oil Tank/HAB Tank
15	Park Brake
16	Brake Booster
17	(Reserved: B8)
18	(Reserved: C3)
19	Oil Pressure and Level
20	Oil Level Switch
21	Oil Level Check Switch
22	Malfunction Indicator Lamp
23	Water Separator
24	Glow
25	Check Trans
26	AT Oil Temp
27	OD OFF
28	(Reserved: A22)
29	High Beam
30	Turn RH
31	Turn LH
32	(Reserved: A7)
33	DRL
34	Air Cleaner
35	(Reserved: A19)
36	Seat Belt
37	(Reserved: A18)
38	(Reserved: B3)
39	(Reserved: A8)

40	(Reserved: C4)

Repair Instructions

Instrument Cluster Replacement

Removal Procedure

Warning: **Refer to CELL Link Error - Link target cell (cell ID 178001) is invalid for this publication..**

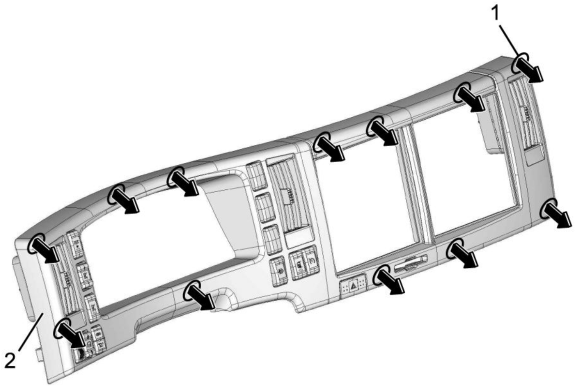
1. Disconnect the battery ground cable

   Note:

   - Do not disconnect within 3 minute after turning OFF the ignition switch.
   - The ECM may malfunction if the battery cable is disconnected within 3 minutes.

2. Remove the instrument panel (IP) cluster.

   Refer to CELL Link Error - Link target cell (cell ID 282089) is invalid for this publication..

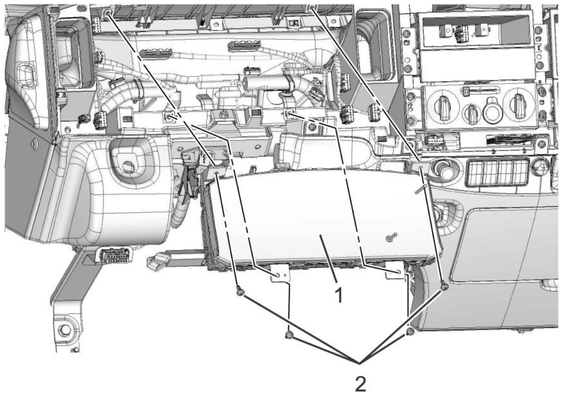


LNW78DSH002901

3. Remove the instrument panel (IP) cluster (1).

   3.1. Remove the four screws (2)

   3.2. Disconnect the instrument panel (IP) cluster connector.



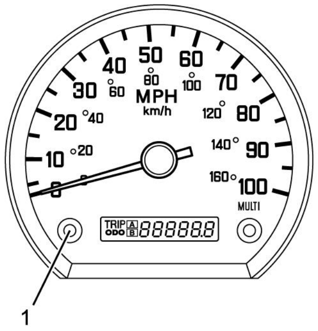
LNW78DSH003001

Installation Procedure

To install, follow the removal steps in the reverse order.

Diagnostic Information and Procedures

Speedometer Test



LNWA80SH000401

The speedometer is made up of the stepper motor type ammeter (movement) that displays indications, the stepper motor that drives and adds up the odometer and trip meter, and the driving circuit (printed circuit board) that makes exchanges between the pulse signals and the current.

Odometer alternates with trip meter by pushing select/reset knob.

On-Vehicle Service

Check the instrument panel (IP) cluster display accuracy and the operation of the odometer with the speedometer tester.

Tester Display Speed	Instrument Panel Cluster Display Permissible Level
40 MPH 60 km/h	39.2 – 40.8 MPH 58.5 – 61.5 km/h
60 MPH 100 km/h	59.0 – 61.0 MPH 98.5 – 101.5 km/h

Note: Inappropriate tire inflation may affect the accuracy of the odometer.

(To conduct this test, refer to the tester manufacture instruction manual.)

Since the instrument panel (IP) cluster display permissible levels above are specifications solely for the instrument panel (IP) cluster, they are to be used as reference values when conducting on-vehicle service.

Description and Operation

Keyless Entry System Circuit Description

The circuit consists of the keyless entry control unit, remote controller key, key remaind switch, door lock relay, door lock motor, door switch, and etc..

The signal that the keyless entry control unit receives is sent to the door lock relay when the remote controller key button is pressed. The door lock relay operates the door lock motor and the doors will be locked or unlocked.

The Keyless Entry System is equipped with the following functions.

- Lock and unlock functions by remote controller operation, auto re-lock function and retry function.
- Remote controller key registration function
- Answer-back function

For lock and unlock functions with the remote controller operation, when locking/unlocking, the driver side door and passenger side door are controlled at the same time. For double cab models, the rear doors are also controlled at the same time.

The auto re-lock function locks the door automatically if the door is not open for 30 seconds or more after unlocking.

The remote controller operation is disabled if the following are met.

- Battery power supply is not applied to the keyless entry control unit.
- The key is inserted into the key cylinder.
- The door is open.
- The ignition switch position is ON or ACC.

If the driver side door is not locked when the doors are locked by the remote controller operation, the retry function locks automatiocally one second later (only once).

When any of the following are met, until the retry function activates, the retry function is disabled.

- The door is open.
- The remote controller key is inserted to the key cylinder.
- An operation is newly performed by the remote controller key.

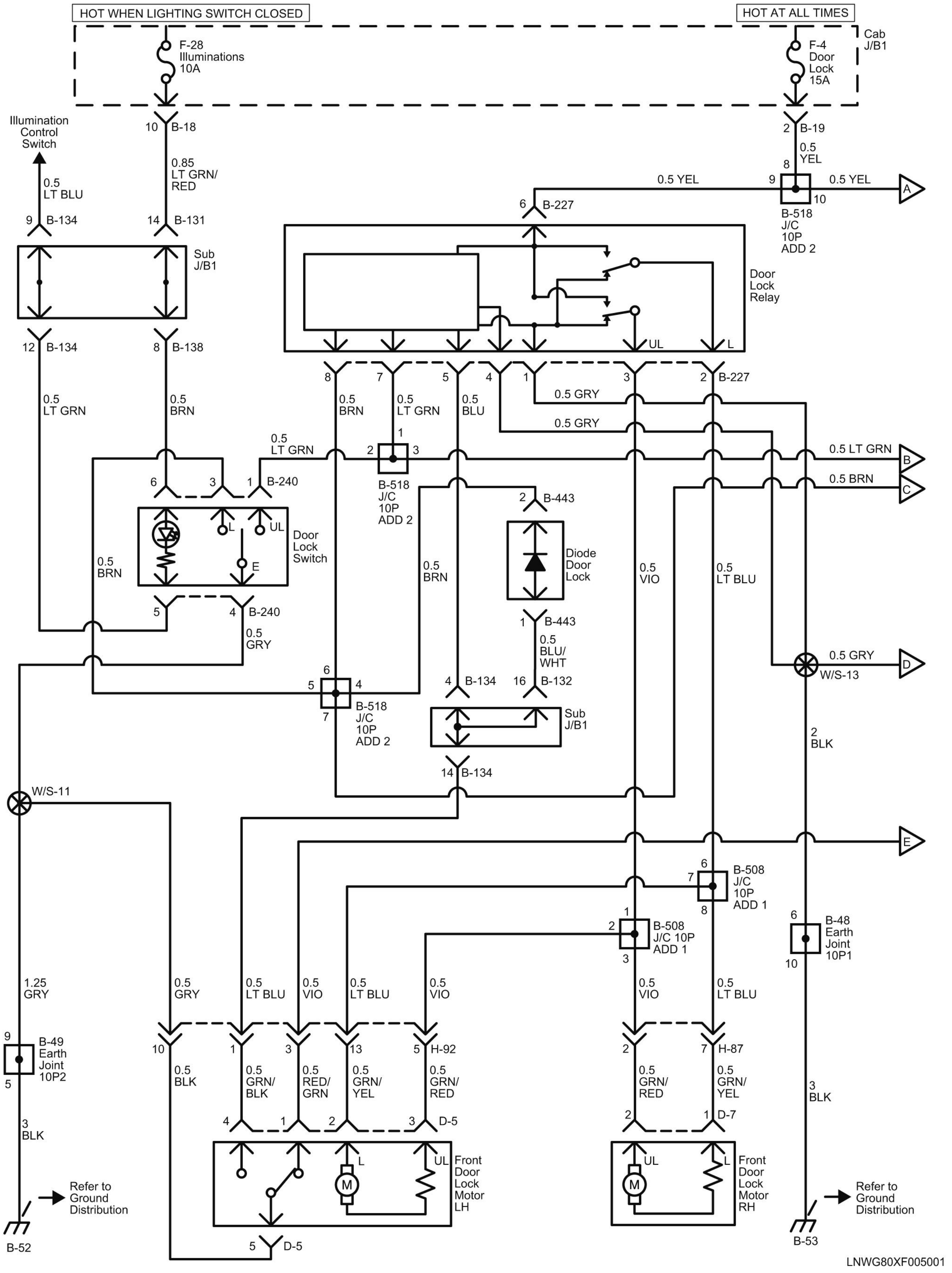
For the remote controller key registration function, the remote controller operation registration is accepted only from the genuine remote controller key. It is possible to register a maximum of 4 remote controller keys.

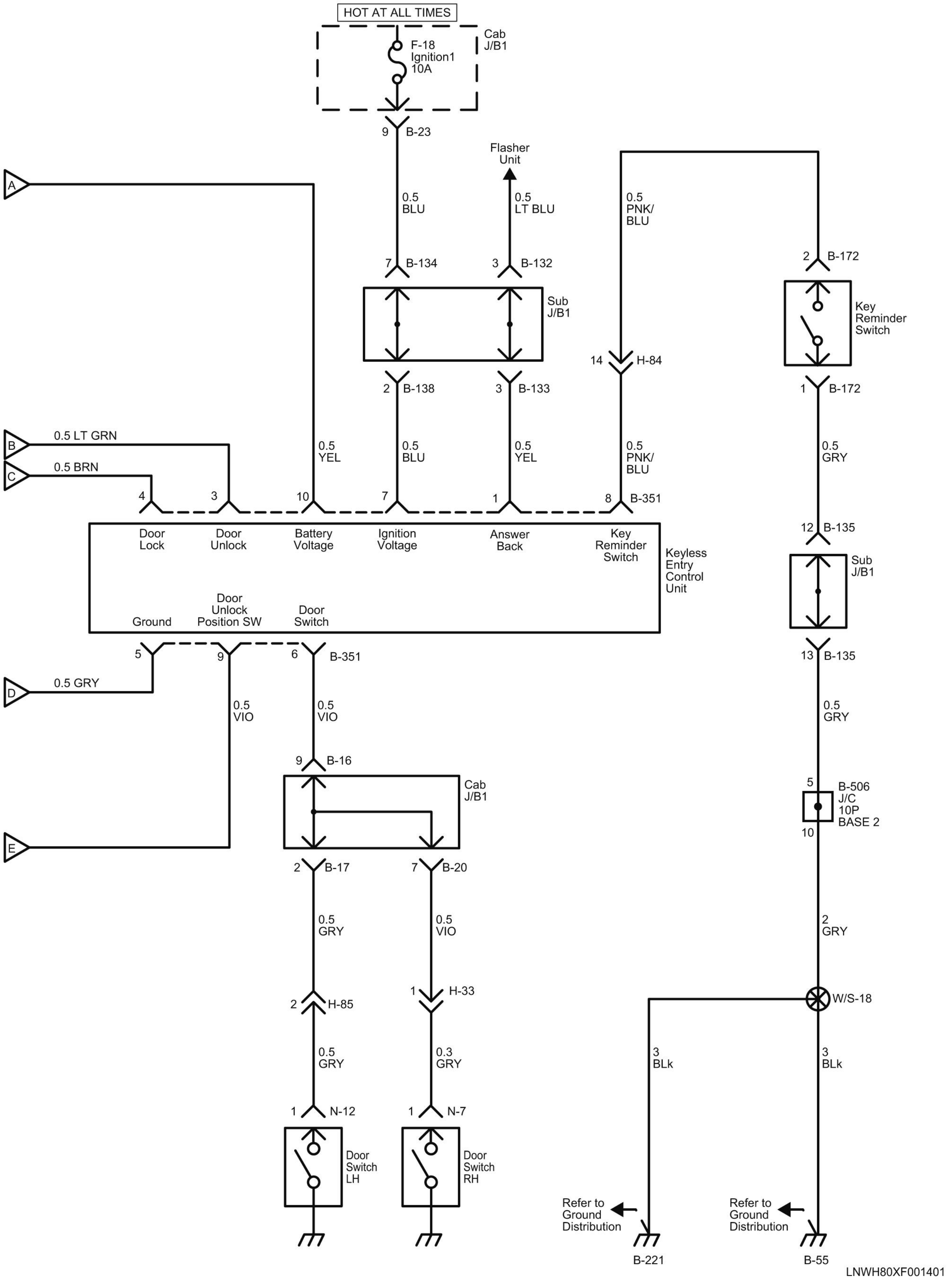
If 4 remote controller keys are registered, the oldest code is cleared for additional registrations. For the registration procedure of the remote controller key, refer to Registration of the remote controller key.

For the answer-back function, perform the answer-back using the hazard lights. There are the following 2 patterns for the answer-back. Answer-back will not activate when auto re-lock is performed.

- 1 flash: when locked by the remote controller key or locked by the auto re-lock function.
- 2 flashes: when unlocked by the remote controller key

Keyless Entry Schematics


HOT WHEN LIGHTING SWITCH CLOSED
HOT AT ALL TIMES
F-28 Illuminations 10A
F-4 Door Lock 15A
Cab J/B1
Illumination Control Switch
10 B-18
2 B-19
0.85 LT GRN/ RED
0.5 YEL
0.5 LT BLU
9 B-134
14 B-131
8
9
10
0.5 YEL
0.5 YEL
A
B-518 J/C 10P ADD 2
6 B-227
Sub J/B1
Door Lock Relay
UL
L
12 B-134
8 B-138
8 7 5 4 1 3 2 B-227
0.5 LT GRN
0.5 BRN
0.5 BRN
0.5 LT GRN
0.5 BLU
0.5 GRY
0.5 GRY
0.5 LT GRN
1
2
3
B
0.5 LT GRN
0.5 BRN
C
6 3 1 B-240
B-518 J/C 10P ADD 2
2 B-443
Door Lock Switch
L
UL
E
Diode Door Lock
0.5 BRN
0.5 BRN
0.5 VIO
0.5 LT BLU
5 4 B-240
0.5 GRY
1 B-443
0.5 BLU/ WHT
0.5 GRY
D
W/S-13
6
5 4
7
B-518 J/C 10P ADD 2
4 B-134
16 B-132
Sub J/B1
2 BLK
14 B-134
W/S-11
E
6
7
8
B-508 J/C 10P ADD 1
1
2
3
B-508 J/C 10P ADD 1
6
10
B-48 Earth Joint 10P1
1.25 GRY
0.5 GRY
0.5 LT BLU
0.5 VIO
0.5 LT BLU
0.5 VIO
0.5 VIO
0.5 LT BLU
9
B-49 Earth Joint 10P2
5
10 1 3 13 5 H-92
2 7 H-87
0.5 BLK
0.5 GRN/ BLK
0.5 RED/ GRN
0.5 GRN/ YEL
0.5 GRN/ RED
0.5 GRN/ RED
0.5 GRN/ YEL
3 BLK
3 BLK
4 1 2 3 D-5
2 1 D-7
L
UL
M
Front Door Lock Motor LH
UL
L
M
Front Door Lock Motor RH
Refer to Ground Distribution
Refer to Ground Distribution
5 D-5
B-52
B-53
LNWG80XF005001

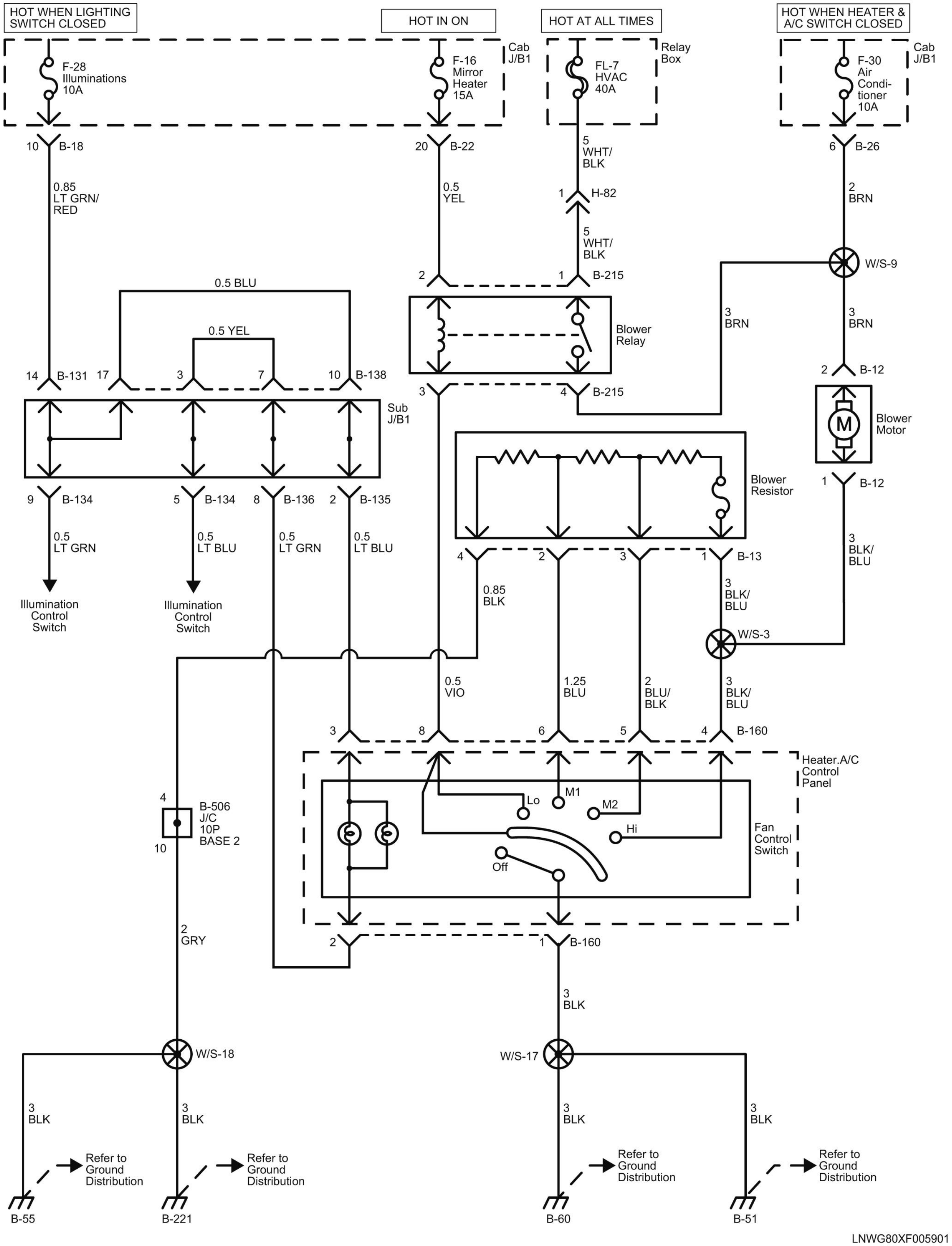

HOT AT ALL TIMES
F-18
Ignition1
10A
Cab
J/B1
9
B-23
Flasher
Unit
0.5
BLU
0.5
LT BLU
0.5
PNK/
BLU
A
7
B-134
3
B-132
Sub
J/B1
2
B-172
Key
Reminder
Switch
14
H-84
2
B-138
3
B-133
1
B-172
B
0.5 LT GRN
C
0.5 BRN
0.5
YEL
0.5
BLU
0.5
YEL
0.5
PNK/
BLU
0.5
GRY
4
3
10
7
1
8
B-351
12
B-135
Door
Lock
Door
Unlock
Battery
Voltage
Ignition
Voltage
Answer
Back
Key
Reminder
Switch
Keyless
Entry
Control
Unit
Sub
J/B1
Ground
Door
Unlock
Position SW
Door
Switch
5
9
6
B-351
13
B-135
D
0.5 GRY
0.5
VIO
0.5
VIO
0.5
GRY
9
B-16
Cab
J/B1
5
B-506
J/C
10P
BASE 2
10
E
2
B-17
7
B-20
0.5
GRY
0.5
VIO
2
GRY
2
H-85
1
H-33
W/S-18
0.5
GRY
0.3
GRY
3
BLk
3
BLk
1
N-12
1
N-7
Door
Switch
LH
Door
Switch
RH
Refer to
Ground
Distribution
Refer to
Ground
Distribution
B-221
B-55
LNWH80XF001401

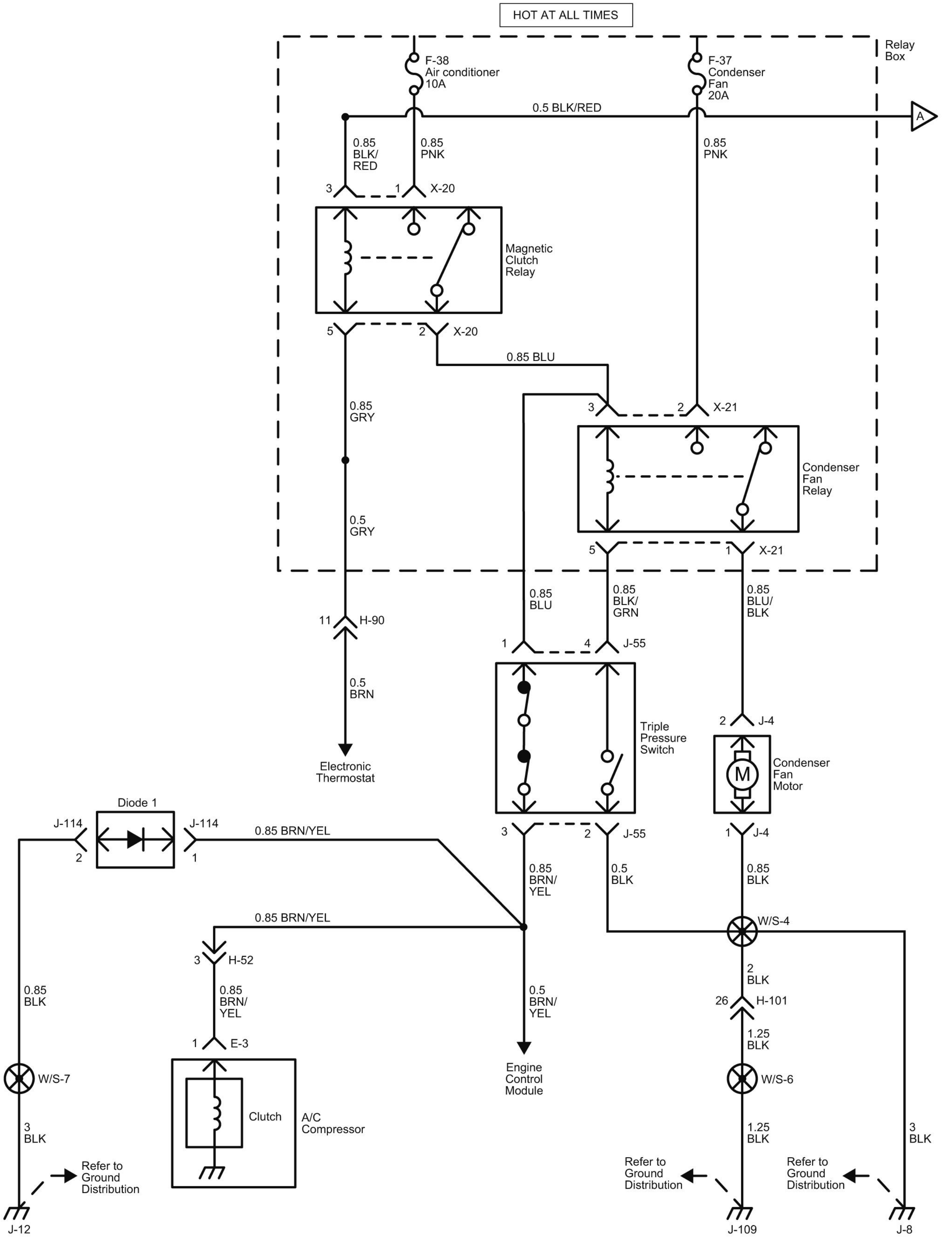
Description and Operation

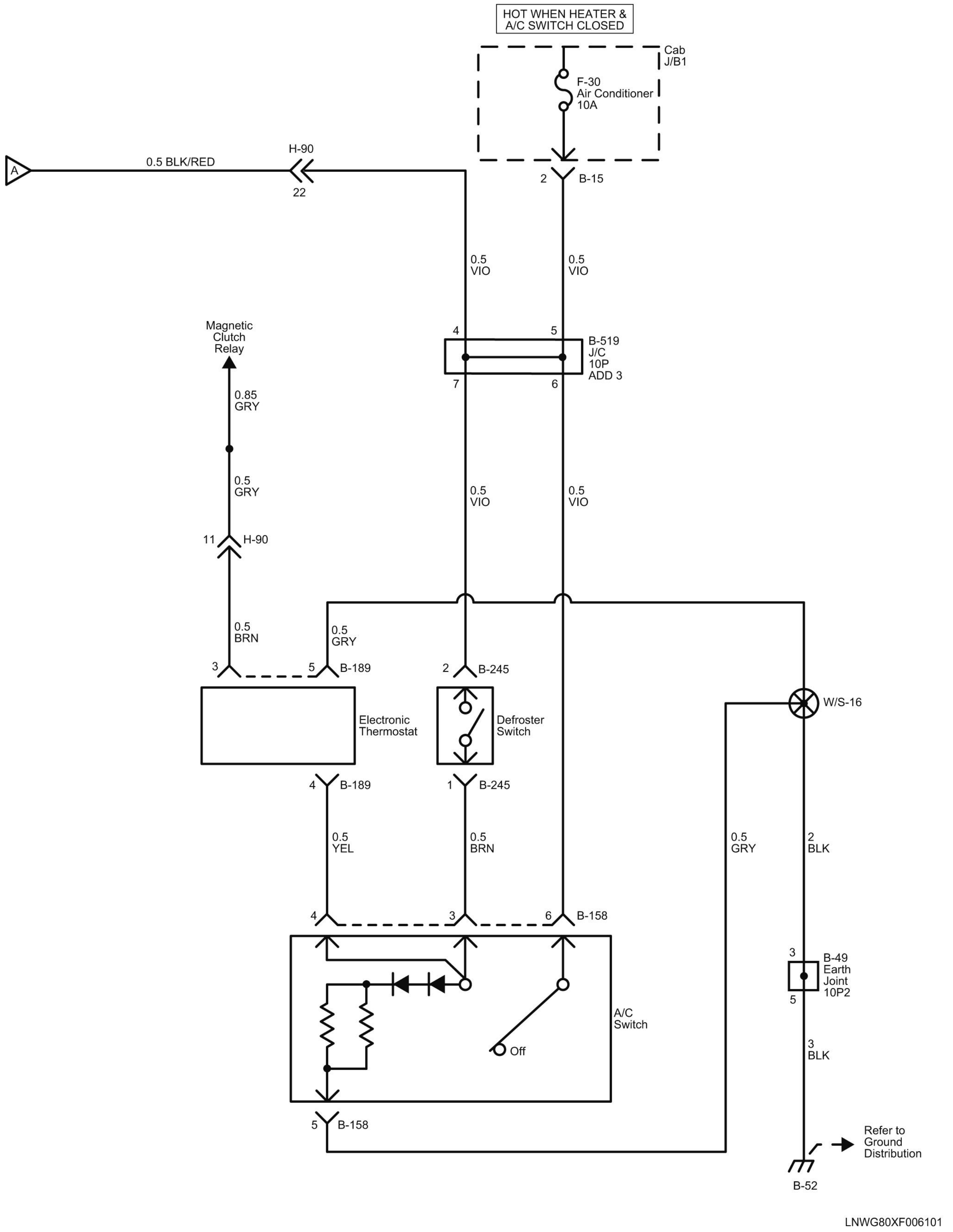
HVAC Circuit Description

The air conditioning circuit consists of compressor, A/C switch, fan switch, etc. When the engine is rotating, the A/C starts to work with both the A/C and fan switches “ON”, followed by the engagement of the magnetic clutch. It stops to work when either the fan switch or the A/C switch turns “OFF”. In addition, the A/C has the function of temporary stop of its operation by function of the pressure switch when sensing abnormal rise of the refrigerant pressure.

HVAC Schematics


HOT WHEN LIGHTING SWITCH CLOSED
HOT IN ON
HOT AT ALL TIMES
HOT WHEN HEATER & A/C SWITCH CLOSED
F-28 Illuminations 10A
F-16 Mirror Heater 15A
Cab J/B1
FL-7 HVAC 40A
Relay Box
F-30 Air Condi-tioner 10A
Cab J/B1
10 B-18
20 B-22
5 WHT/BLK
6 B-26
0.85 LT GRN/RED
0.5 YEL
1 H-82
5 WHT/BLK
2 BRN
W/S-9
2 B-215
1 B-215
0.5 BLU
0.5 YEL
Blower Relay
3 BRN
3 BRN
14 B-131
17
3
7
10 B-138
3 B-215
4 B-215
2 B-12
Blower Motor
Sub J/B1
Blower Resistor
1 B-12
9 B-134
5 B-134
8 B-136
2 B-135
0.5 LT GRN
0.5 LT BLU
0.5 LT GRN
0.5 LT BLU
4
2
3
1 B-13
3 BLK/BLU
Illumination Control Switch
Illumination Control Switch
0.85 BLK
3 BLK/BLU
W/S-3
0.5 VIO
1.25 BLU
2 BLU/BLK
3 BLK/BLU
3
8
6
5
4 B-160
Heater.A/C Control Panel
4
B-506 J/C 10P BASE 2
10
Lo
M1
M2
Hi
Off
Fan Control Switch
2 GRY
2
1 B-160
3 BLK
W/S-18
W/S-17
3 BLK
3 BLK
3 BLK
3 BLK
Refer to Ground Distribution
Refer to Ground Distribution
Refer to Ground Distribution
Refer to Ground Distribution
B-55
B-221
B-60
B-51
LNWG80XF005901


HOT AT ALL TIMES
Relay Box
F-38 Air conditioner 10A
F-37 Condenser Fan 20A
0.5 BLK/RED
A
0.85 BLK/RED
0.85 PNK
0.85 PNK
3
1
X-20
Magnetic Clutch Relay
5
2
X-20
0.85 BLU
3
2
X-21
Condenser Fan Relay
5
1
X-21
0.85 GRY
0.5 GRY
11
H-90
0.5 BRN
Electronic Thermostat
0.85 BLU
0.85 BLK/GRN
0.85 BLU/BLK
1
4
J-55
Triple Pressure Switch
2
J-4
Condenser Fan Motor
M
1
J-4
3
2
J-55
Diode 1
J-114
2
J-114
1
0.85 BRN/YEL
0.85 BRN/YEL
0.5 BLK
0.85 BLK
W/S-4
3
H-52
0.85 BRN/YEL
1
E-3
Clutch
A/C Compressor
0.5 BRN/YEL
Engine Control Module
2 BLK
26
H-101
1.25 BLK
W/S-6
1.25 BLK
0.85 BLK
W/S-7
3 BLK
Refer to Ground Distribution
J-12
Refer to Ground Distribution
J-109
Refer to Ground Distribution
3 BLK
J-8
LNWG80XF006001

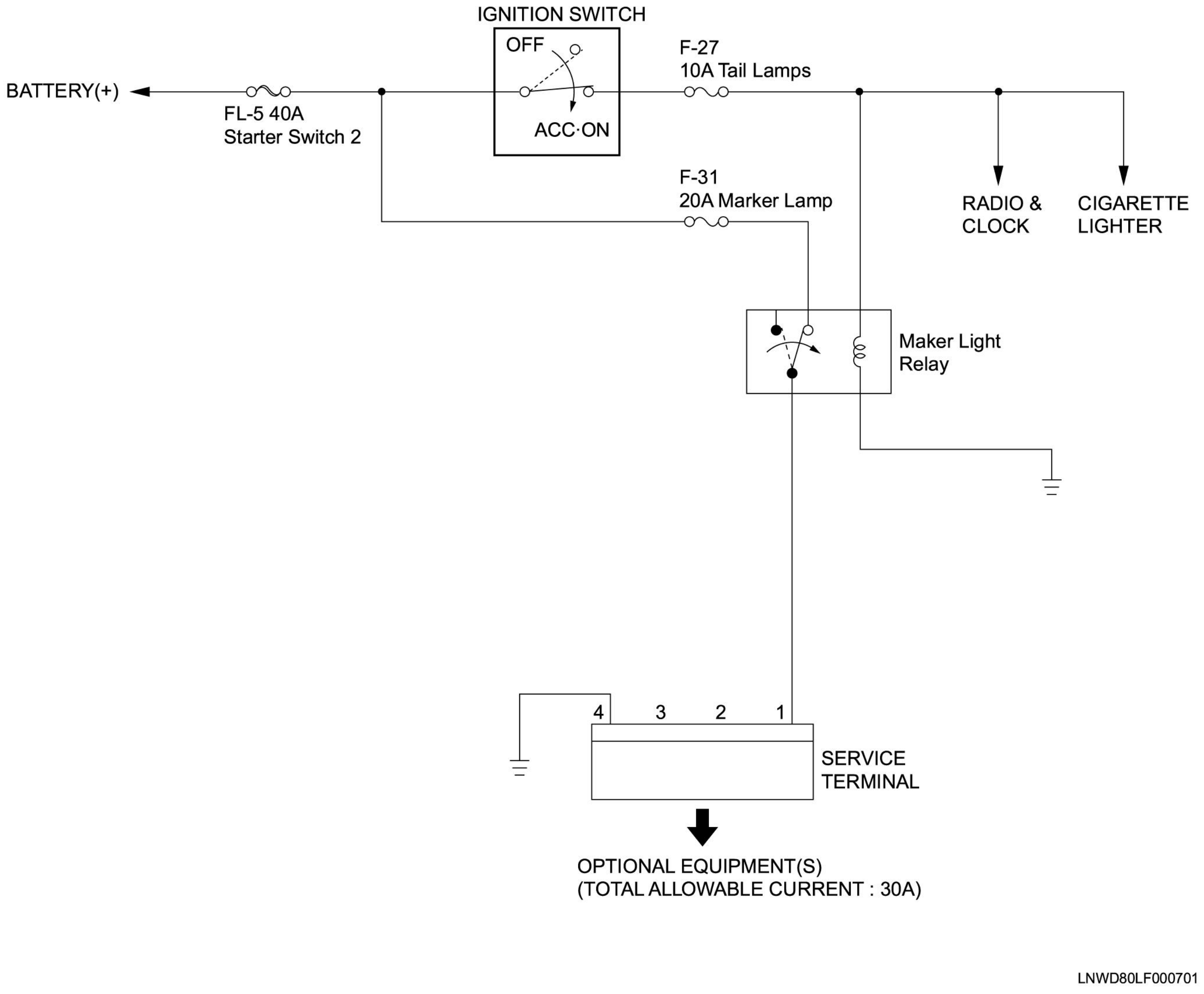

HOT WHEN HEATER & A/C SWITCH CLOSED
Cab J/B1
F-30 Air Conditioner 10A
2 B-15
A
0.5 BLK/RED
H-90
22
0.5 VIO
0.5 VIO
4
5
B-519 J/C 10P ADD 3
7
6
Magnetic Clutch Relay
0.85 GRY
0.5 GRY
0.5 VIO
0.5 VIO
11 H-90
0.5 BRN
0.5 GRY
3
5 B-189
2 B-245
Electronic Thermostat
Defroster Switch
W/S-16
4 B-189
1 B-245
0.5 YEL
0.5 BRN
0.5 GRY
2 BLK
4
3
6 B-158
3
B-49 Earth Joint 10P2
5
A/C Switch
Off
3 BLK
5 B-158
Refer to Ground Distribution
B-52
LNWG80XF006101

Description and Operation

Service Terminal Circuit Description

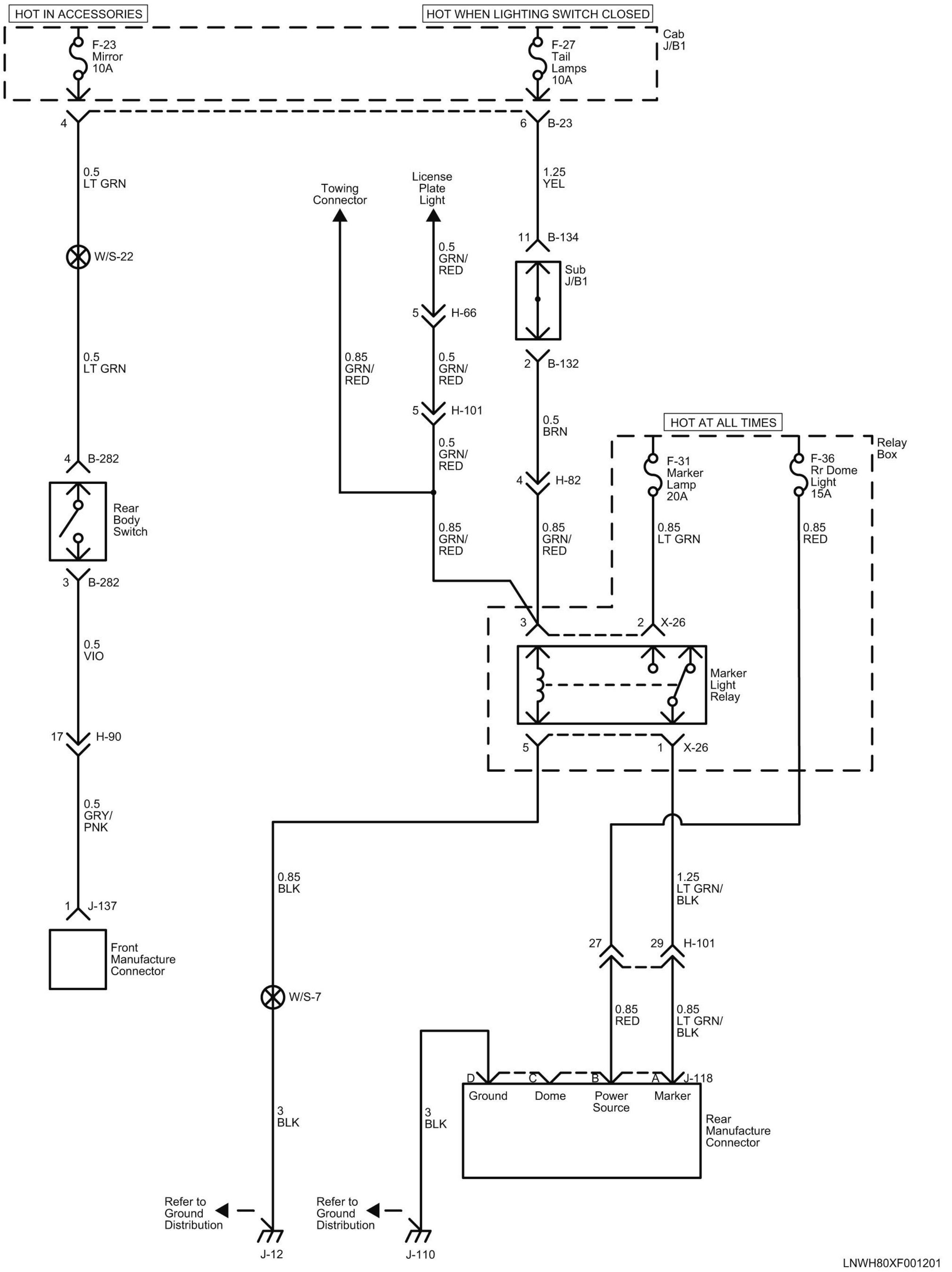
The circuit consists of the maker light relay, and the connector for the service terminal.

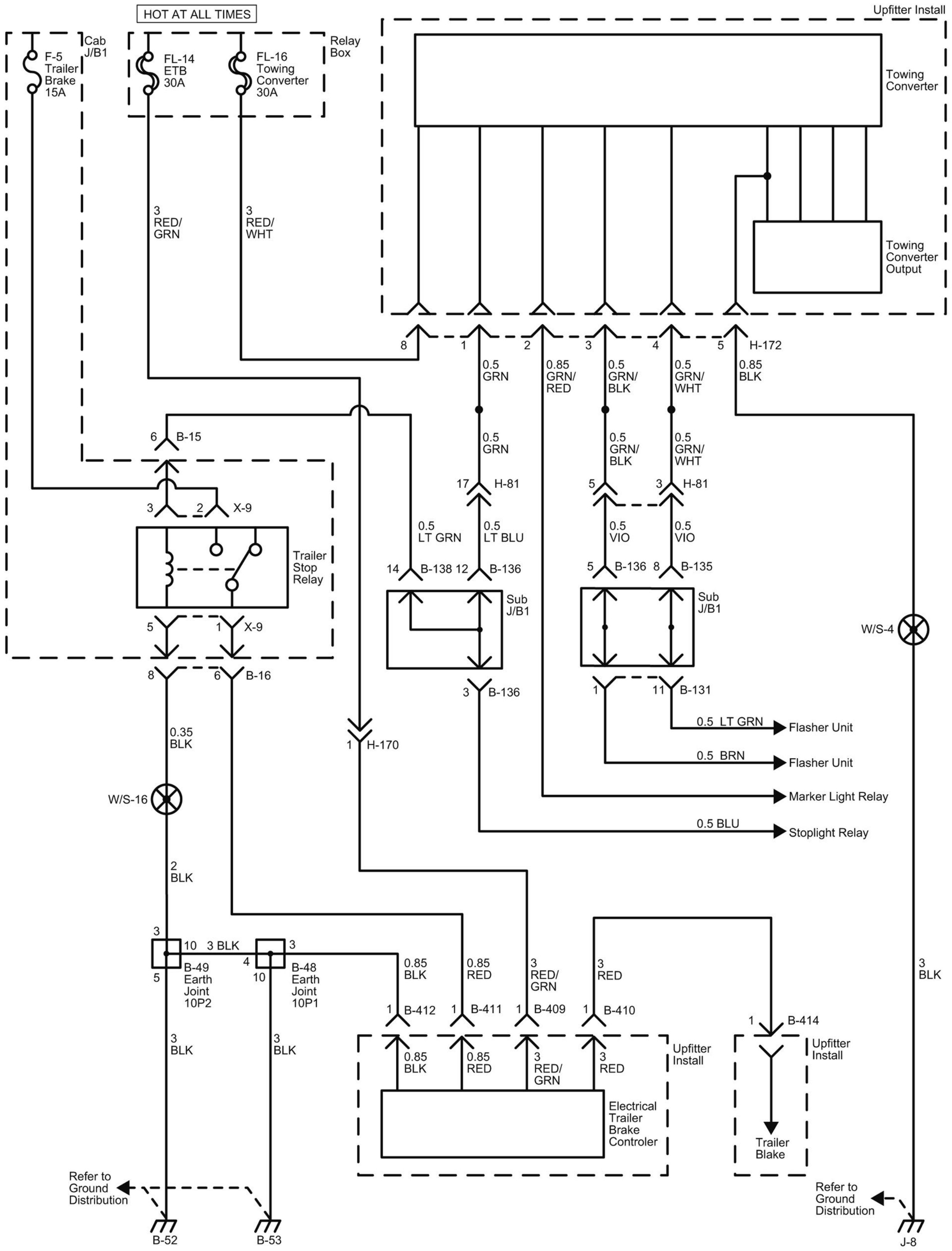
The service terminal connector is provided for Installation of optional equipment (S). This circuit incorporates a 20A fuse. Make sure that the total current of all installed parts does not exceed 20A.


IGNITION SWITCH
OFF
ACC·ON
BATTERY(+)
FL-5 40A
Starter Switch 2
F-27
10A Tail Lamps
F-31
20A Marker Lamp
RADIO &
CLOCK
CIGARETTE
LIGHTER
Maker Light
Relay
4
3
2
1
SERVICE
TERMINAL
OPTIONAL EQUIPMENT(S)
(TOTAL ALLOWABLE CURRENT : 30A)
LNWD80LF000701

Schematic and Routing Diagrams

Service Terminal Schematics


HOT IN ACCESSORIES
HOT WHEN LIGHTING SWITCH CLOSED
F-23
Mirror
10A
F-27
Tail
Lamps
10A
Cab
J/B1
4
6
B-23
0.5
LT GRN
1.25
YEL
Towing
Connector
License
Plate
Light
W/S-22
0.5
GRN/
RED
11
B-134
Sub
J/B1
5
H-66
0.5
LT GRN
0.85
GRN/
RED
0.5
GRN/
RED
2
B-132
5
H-101
0.5
BRN
HOT AT ALL TIMES
4
B-282
0.5
GRN/
RED
F-31
Marker
Lamp
20A
F-36
Rr Dome
Light
15A
Relay
Box
4
H-82
Rear
Body
Switch
0.85
GRN/
RED
0.85
GRN/
RED
0.85
LT GRN
0.85
RED
3
B-282
3
2
X-26
0.5
VIO
Marker
Light
Relay
17
H-90
5
1
X-26
0.5
GRY/
PNK
0.85
BLK
1.25
LT GRN/
BLK
1
J-137
Front
Manufacture
Connector
27
29
H-101
W/S-7
0.85
RED
0.85
LT GRN/
BLK
D
C
B
A
J-118
Ground
Dome
Power
Source
Marker
Rear
Manufacture
Connector
3
BLK
3
BLK
Refer to
Ground
Distribution
Refer to
Ground
Distribution
J-12
J-110
LNWH80XF001201


HOT AT ALL TIMES
Cab J/B1
F-5 Trailer Brake 15A
FL-14 ETB 30A
FL-16 Towing Converter 30A
Relay Box
Upfitter Install
Towing Converter
Towing Converter Output
3 RED/ GRN
3 RED/ WHT
8
1
2
3
4
5
H-172
0.5 GRN
0.85 GRN/ RED
0.5 GRN/ BLK
0.5 GRN/ WHT
0.85 BLK
6 B-15
0.5 GRN
0.5 GRN/ BLK
0.5 GRN/ WHT
17 H-81
5
3 H-81
3
2 X-9
0.5 LT GRN
0.5 LT BLU
0.5 VIO
0.5 VIO
Trailer Stop Relay
14 B-138 12 B-136
5 B-136 8 B-135
Sub J/B1
Sub J/B1
W/S-4
5
1 X-9
8
6 B-16
3 B-136
1
11 B-131
0.5 LT GRN
Flasher Unit
0.5 BRN
Flasher Unit
Marker Light Relay
0.5 BLU
Stoplight Relay
0.35 BLK
1 H-170
W/S-16
2 BLK
3
10 3 BLK
3
5
B-49 Earth Joint 10P2
4
10
B-48 Earth Joint 10P1
0.85 BLK
0.85 RED
3 RED/ GRN
3 RED
3 BLK
1 B-412
1 B-411
1 B-409
1 B-410
1 B-414
0.85 BLK
0.85 RED
3 RED/ GRN
3 RED
Upfitter Install
Electrical Trailer Brake Controler
Upfitter Install
Trailer Blake
3 BLK
3 BLK
Refer to Ground Distribution
Refer to Ground Distribution
B-52
B-53
J-8

Description and Operation

Power Windows

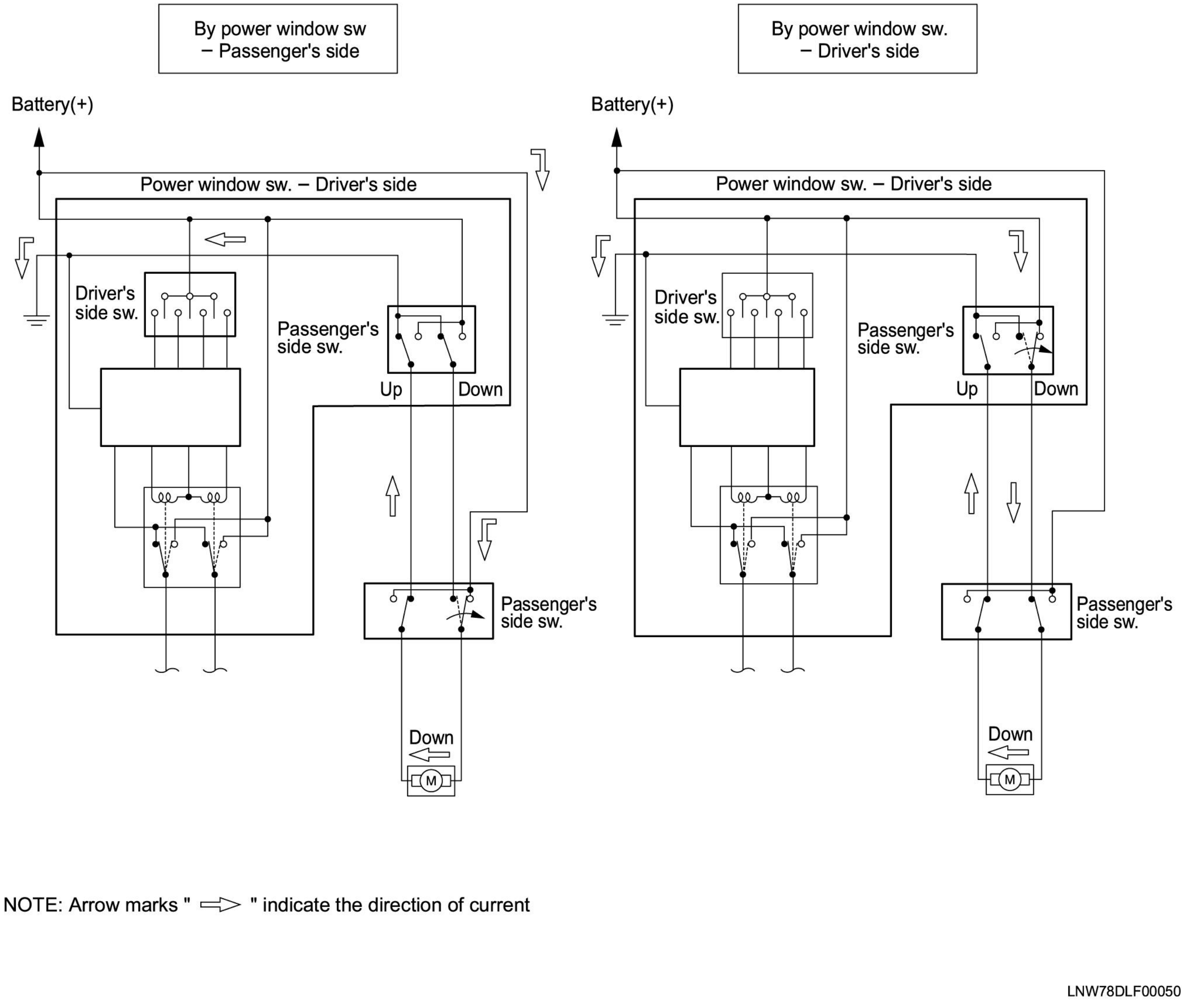
The circuit consist of the ignition switch, power window switch for each of the windows and power window motor.

When the ignition switch is turned on, the battery voltage is applied to each of the power window switches through the circuit breaker and the power window relay on the circuit.

By operating the switches of each window to select “UP” or “DOWN”, the revolving direction of the power window motor changes to open or close the window.

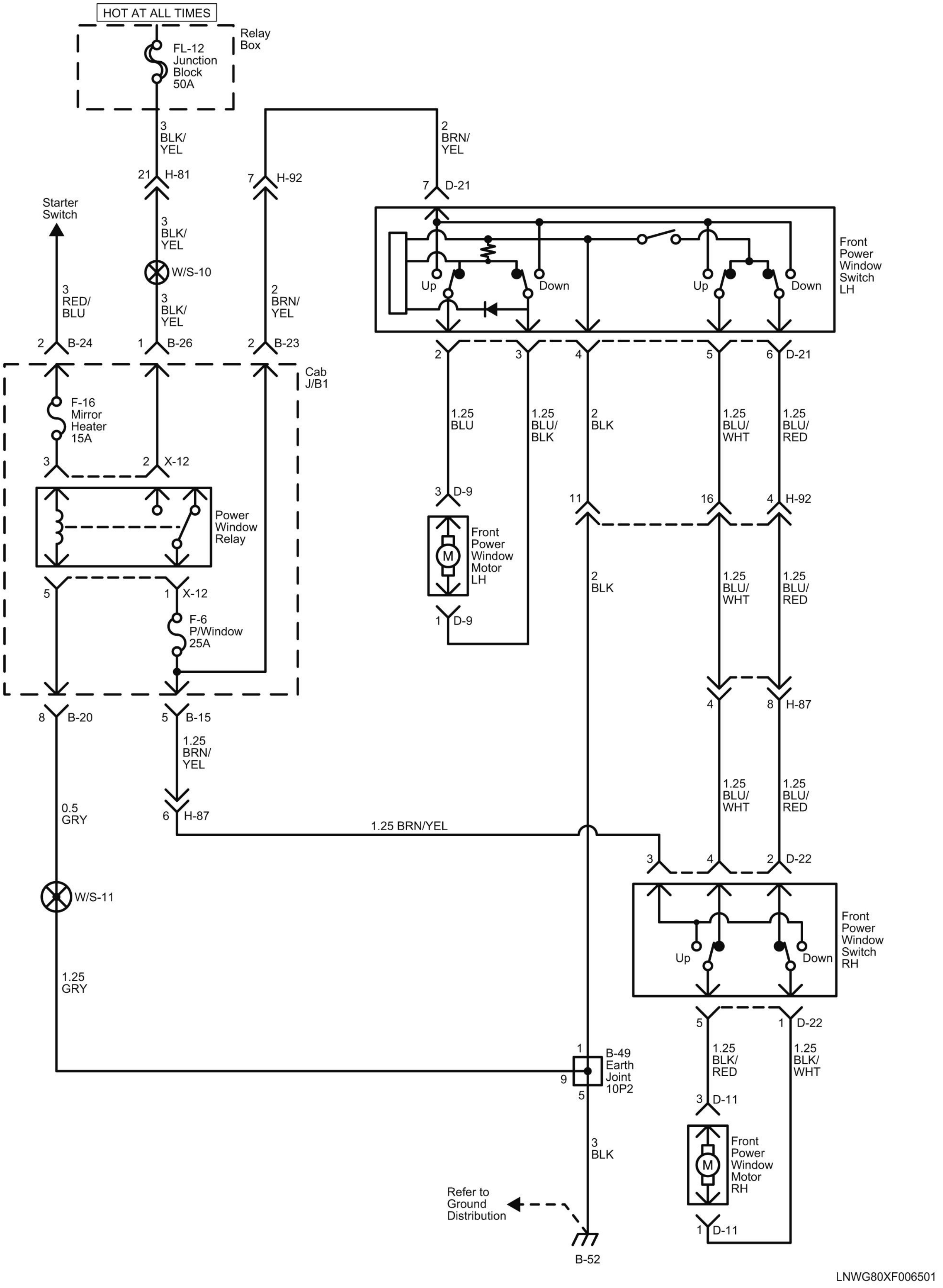
The driver’s power window switch has a built-in one-touch operating circuit which allows to automatically open the window by operating the switch to the AUTO position.

Operation of Passenger Side Window


By power window sw
– Passenger's side
By power window sw.
– Driver's side
Battery(+)
Power window sw. – Driver's side
Driver's side sw.
Passenger's side sw.
Up
Down
Passenger's side sw.
Down
M
Battery(+)
Power window sw. – Driver's side
Driver's side sw.
Passenger's side sw.
Up
Down
Passenger's side sw.
Down
M
NOTE: Arrow marks " ⇨ " indicate the direction of current
LNW78DLF000501

Schematic and Routing Diagrams

Power Window Schematics


HOT AT ALL TIMES
Relay Box
FL-12 Junction Block 50A
3 BLK/ YEL
21 H-81
3 BLK/ YEL
W/S-10
3 BLK/ YEL
Starter Switch
3 RED/ BLU
7 H-92
2 BRN/ YEL
2 BRN/ YEL
7 D-21
2 B-24
1 B-26
2 B-23
Cab J/B1
F-16 Mirror Heater 15A
3
2 X-12
Power Window Relay
5
1 X-12
F-6 P/Window 25A
8 B-20
5 B-15
1.25 BRN/ YEL
6 H-87
1.25 BRN/YEL
0.5 GRY
W/S-11
1.25 GRY
Front Power Window Switch LH
Up
Down
Up
Down
2
3
4
5
6 D-21
1.25 BLU
1.25 BLU/ BLK
2 BLK
1.25 BLU/ WHT
1.25 BLU/ RED
3 D-9
Front Power Window Motor LH
M
1 D-9
11
16
4 H-92
2 BLK
1.25 BLU/ WHT
1.25 BLU/ RED
4
8 H-87
1.25 BLU/ WHT
1.25 BLU/ RED
3
4
2 D-22
Front Power Window Switch RH
Up
Down
5
1 D-22
1.25 BLK/ RED
1.25 BLK/ WHT
3 D-11
Front Power Window Motor RH
M
1 D-11
1
B-49 Earth Joint 10P2
9
5
3 BLK
Refer to Ground Distribution
B-52
LNWG80XF006501

Description and Operation

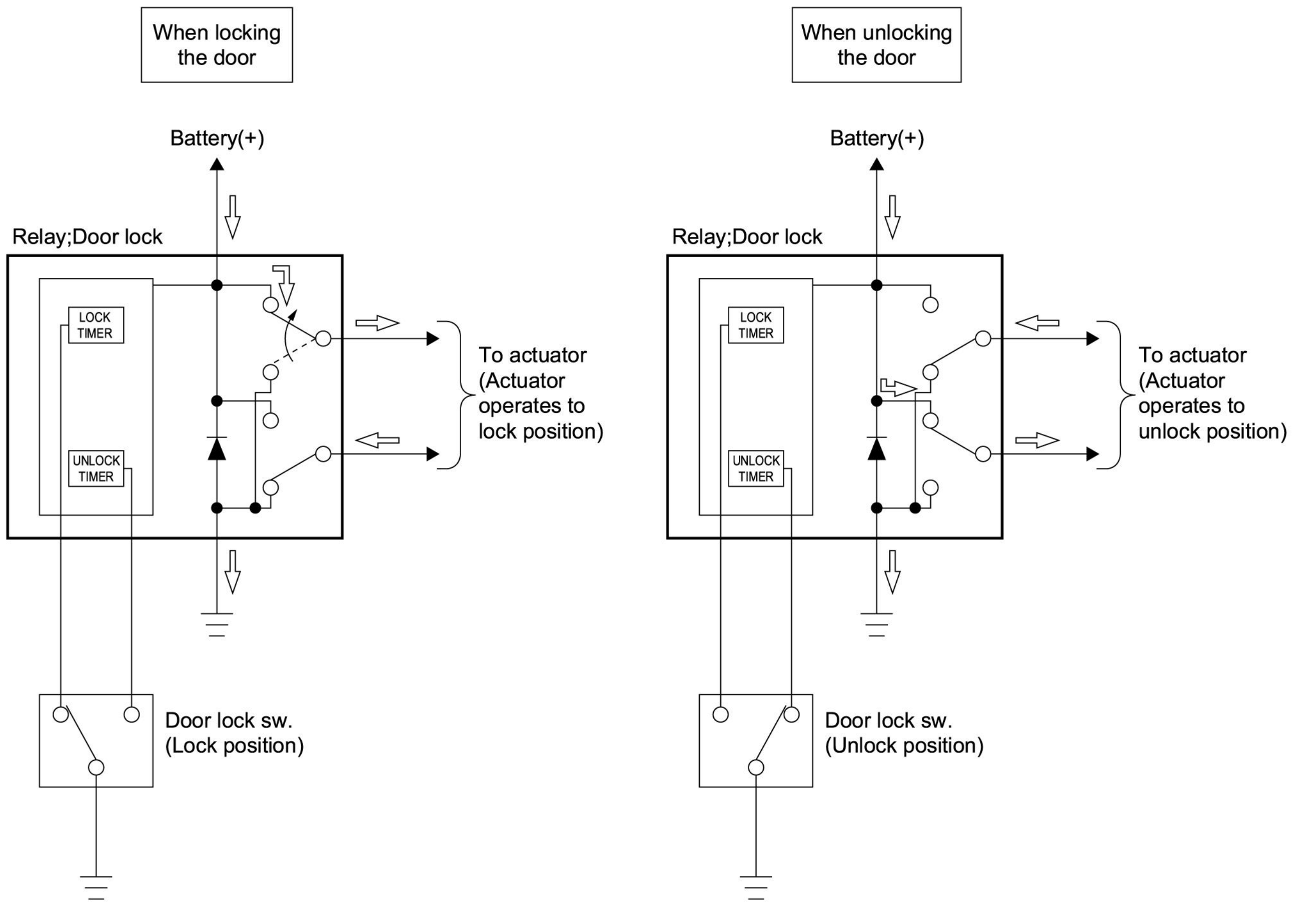
Power Door Locks Circuit Description

The circuit consists of the door lock switch, actuator for the front passenger side door, and the door lock controller.

The door lock relay is always provided with battery voltage. The key or the inside lock knob on the drivers side door can activate the lock mechanism of all the doors.

When the drivers side door lock switch is turned on, current flows for about one second to the door lock actuator of each door connected in parallel with the relay to activates the actuator to lock and unlock the doors.

OPERATION OF DOOR LOCK CONTROLLER

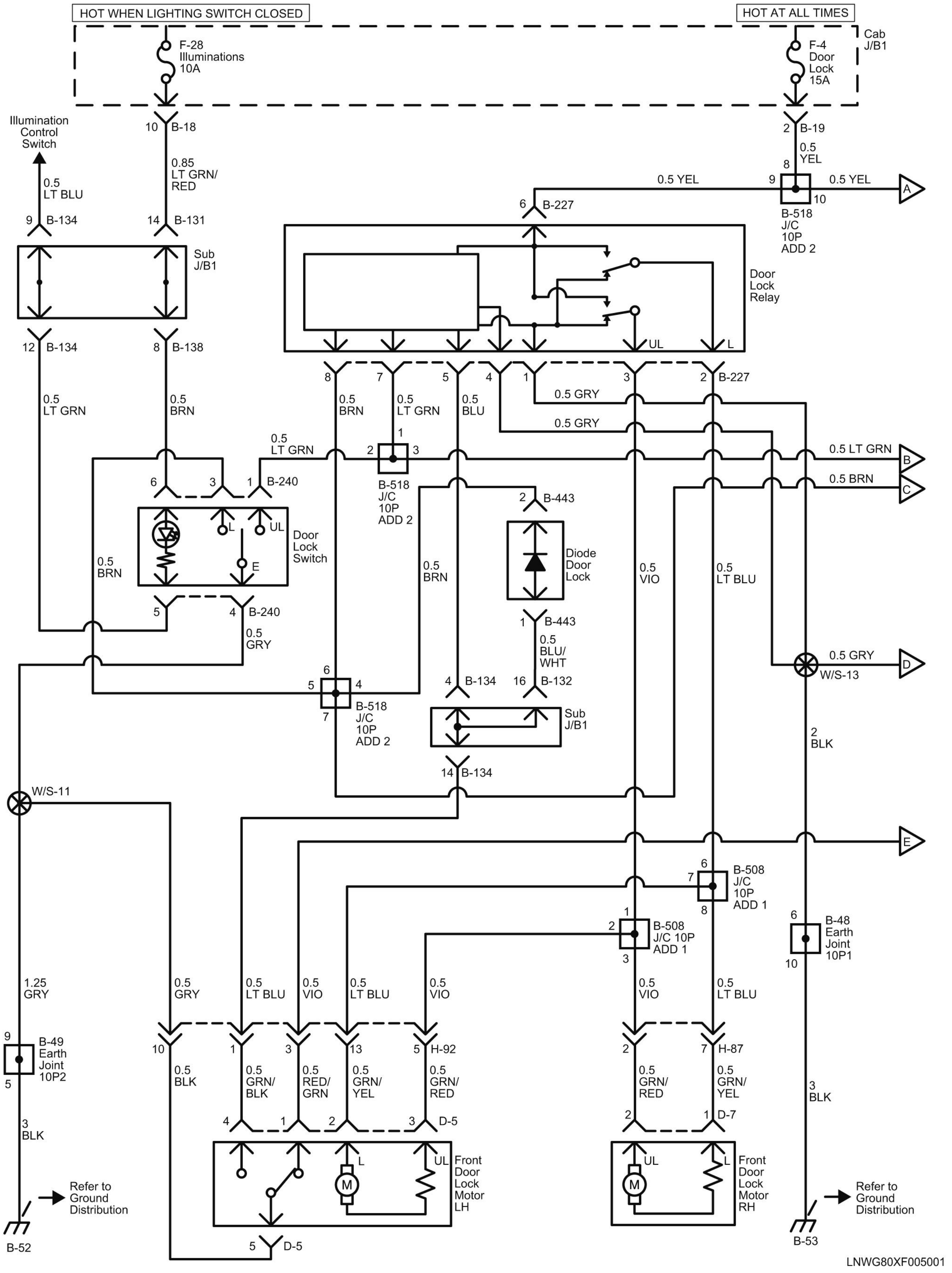

When locking the door
Battery(+)
Relay;Door lock
LOCK TIMER
UNLOCK TIMER
To actuator (Actuator operates to lock position)
Door lock sw. (Lock position)
When unlocking the door
Battery(+)
Relay;Door lock
LOCK TIMER
UNLOCK TIMER
To actuator (Actuator operates to unlock position)
Door lock sw. (Unlock position)

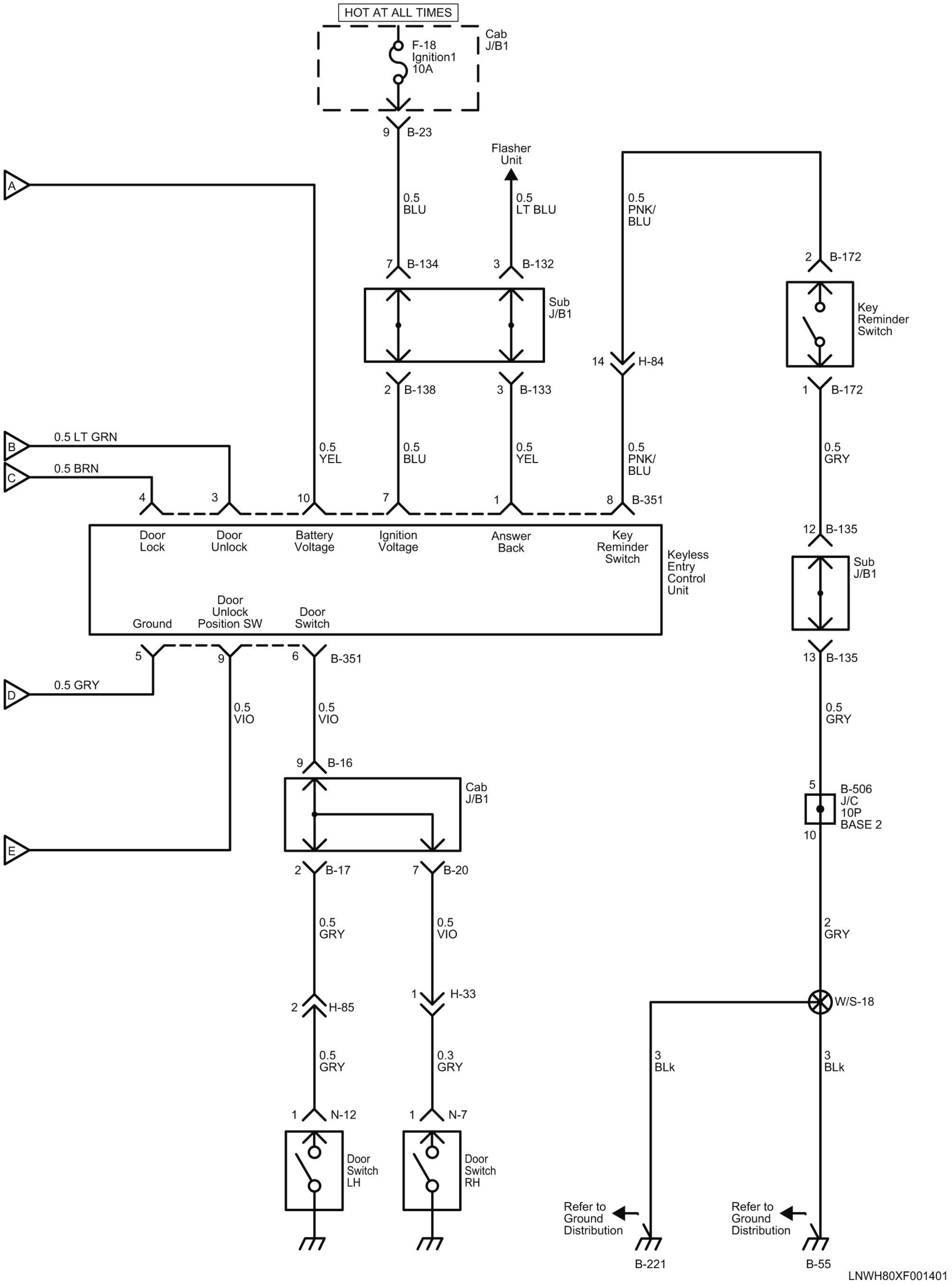
NOTE: Arrow marks " ⇨ " indicate the direction of current

LNW78DLF000401

Schematic and Routing Diagrams

Power Door Lock Schematics


HOT WHEN LIGHTING SWITCH CLOSED
HOT AT ALL TIMES
F-28 Illuminations 10A
F-4 Door Lock 15A
Cab J/B1
Illumination Control Switch
0.5 LT BLU
10 B-18
0.85 LT GRN/ RED
2 B-19
0.5 YEL
8
0.5 YEL
9
0.5 YEL
10
A
B-518 J/C 10P ADD 2
6 B-227
9 B-134
14 B-131
Sub J/B1
Door Lock Relay
UL
L
12 B-134
8 B-138
0.5 LT GRN
0.5 BRN
8 7 5 4 1 3 2 B-227
0.5 BRN
0.5 LT GRN
0.5 BLU
0.5 GRY
0.5 GRY
0.5 LT GRN
1
2 3
B-518 J/C 10P ADD 2
0.5 LT GRN
B
0.5 BRN
C
6 3 1 B-240
2 B-443
L
UL
E
Door Lock Switch
Diode Door Lock
0.5 BRN
0.5 BRN
0.5 VIO
0.5 LT BLU
5 4 B-240
0.5 GRY
1 B-443
0.5 BLU/ WHT
0.5 GRY
D
W/S-13
6
5 4
7
B-518 J/C 10P ADD 2
4 B-134
16 B-132
Sub J/B1
2 BLK
14 B-134
W/S-11
E
6
7
8
B-508 J/C 10P ADD 1
1
2
3
B-508 J/C 10P ADD 1
6
B-48 Earth Joint 10P1
10
1.25 GRY
0.5 GRY
0.5 LT BLU
0.5 VIO
0.5 LT BLU
0.5 VIO
0.5 VIO
0.5 LT BLU
9
B-49 Earth Joint 10P2
5
10 1 3 13 5 H-92
2 7 H-87
0.5 BLK
0.5 GRN/ BLK
0.5 RED/ GRN
0.5 GRN/ YEL
0.5 GRN/ RED
0.5 GRN/ RED
0.5 GRN/ YEL
3 BLK
3 BLK
4 1 2 3 D-5
2 1 D-7
L
UL
M
Front Door Lock Motor LH
UL
L
M
Front Door Lock Motor RH
Refer to Ground Distribution
Refer to Ground Distribution
B-52
5 D-5
B-53
LNWG80XF005001


HOT AT ALL TIMES
F-18
Ignition1
10A
Cab
J/B1
9
B-23
0.5
BLU
Flasher
Unit
0.5
LT BLU
0.5
PNK/
BLU
7
B-134
3
B-132
2
B-172
Sub
J/B1
Key
Reminder
Switch
14
H-84
2
B-138
3
B-133
1
B-172
A
B
0.5 LT GRN
C
0.5 BRN
0.5
YEL
0.5
BLU
0.5
YEL
0.5
PNK/
BLU
0.5
GRY
4
3
10
7
1
8
B-351
12
B-135
Door
Lock
Door
Unlock
Battery
Voltage
Ignition
Voltage
Answer
Back
Key
Reminder
Switch
Keyless
Entry
Control
Unit
Sub
J/B1
Ground
Door
Unlock
Position SW
Door
Switch
5
9
6
B-351
13
B-135
D
0.5 GRY
0.5
VIO
0.5
VIO
0.5
GRY
9
B-16
Cab
J/B1
5
B-506
J/C
10P
BASE 2
10
E
2
B-17
7
B-20
0.5
GRY
0.5
VIO
2
GRY
2
H-85
1
H-33
W/S-18
0.5
GRY
0.3
GRY
3
BLk
3
BLk
1
N-12
1
N-7
Door
Switch
LH
Door
Switch
RH
Refer to
Ground
Distribution
Refer to
Ground
Distribution
B-221
B-55
LNWH80XF001401

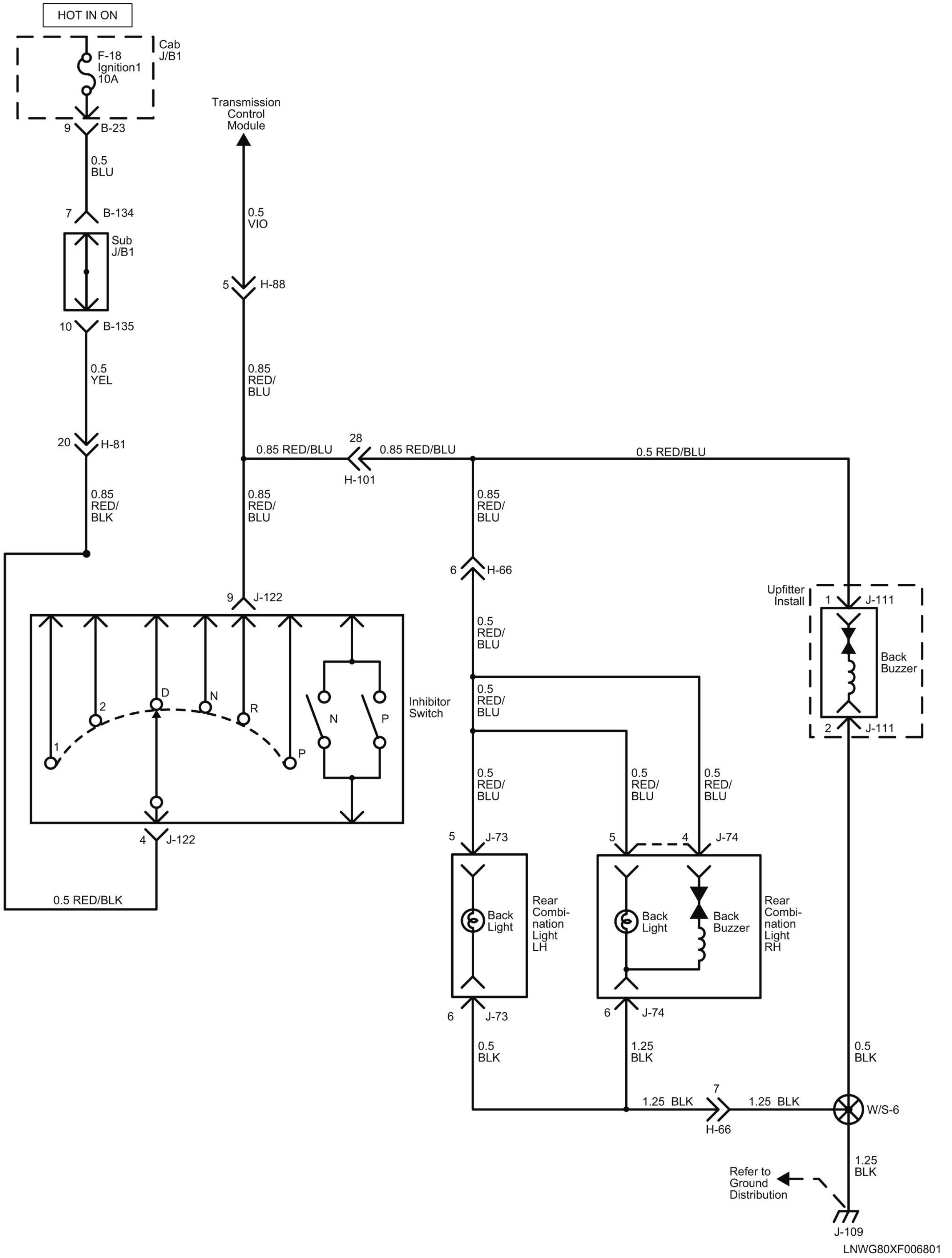
Description and Operation

Backup Alarm System Circuit Description

The circuit consists of the backup light switch (or the inhibitor switch) and back buzzer.

When the reverse position is selected, the backup light switch (or the inhibitor switch) is turned ON and the back buzzer sound.

Backup Alarm System Schematics


HOT IN ON
Cab J/B1
F-18 Ignition1 10A
9 B-23
0.5 BLU
7 B-134
Sub J/B1
10 B-135
0.5 YEL
20 H-81
0.85 RED/BLK
Transmission Control Module
0.5 VIO
5 H-88
0.85 RED/BLU
0.85 RED/BLU
28
H-101
0.85 RED/BLU
0.5 RED/BLU
0.85 RED/BLU
0.85 RED/BLU
6 H-66
0.5 RED/BLU
0.5 RED/BLU
9 J-122
1
2
D
N
R
P
N
P
Inhibitor Switch
4 J-122
0.5 RED/BLK
Upfitter Install
1 J-111
Back Buzzer
2 J-111
0.5 RED/BLU
0.5 RED/BLU
0.5 RED/BLU
5 J-73
Back Light
Rear Combi-nation Light LH
6 J-73
5 4 J-74
Back Light
Back Buzzer
Rear Combi-nation Light RH
6 J-74
0.5 BLK
1.25 BLK
1.25 BLK
7
H-66
1.25 BLK
0.5 BLK
W/S-6
1.25 BLK
Refer to Ground Distribution
J-109
LNWG80XF006801

Description and Operation

Battery Description

The battery has three main functions. It provides a source of energy for cranking the engine, acts as a voltage stabilizer for the electrical system and, for a limited time, can provide energy when the electrical load exceeds the output of the generator.

Refer to “Specifications” at the end of this section for specific application.

Water never needs to be added to the sealed battery so there are no filler caps on the cover. The special chemical composition inside the battery reduces gassing to a very small amount at normal charging voltages. There are small vent holes in the cover to allow what little gas is produced inside the battery to escape. The special chemistry is also designed to greatly reduce the possibility of overcharge damage.

Since there are vent holes in the cover, the battery should always be kept in an upright position. A small amount of electrolyte may leak from the top of the battery if it is tipped at an angle of more than 45 degrees.

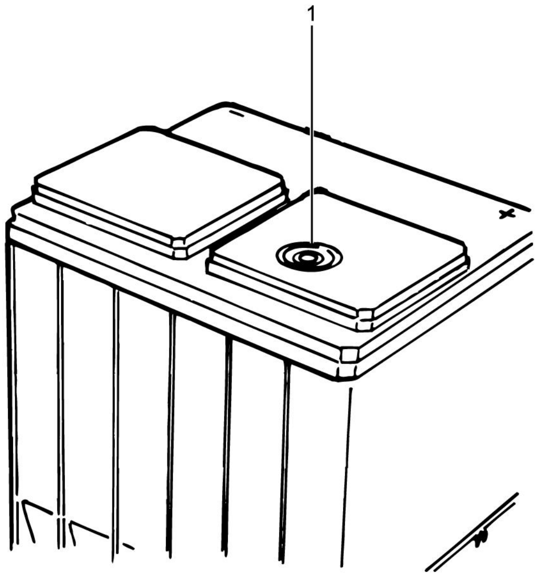
Do not tip the battery more than 45 degrees when carrying or installing it.

Evidence of electrolyte leakage does not necessarily mean that the battery is defective.

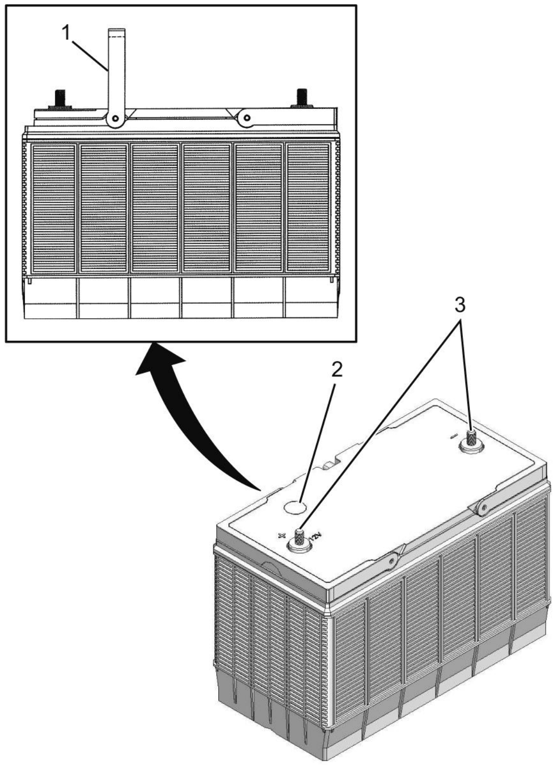
Ratings

A battery generally has two classifications of ratings:

1. A reserve capacity rating at 27°C (80°F).
2. A cold rating at -18°C (0°F), which indicates the cranking load capacity.



LNW46DMH000101

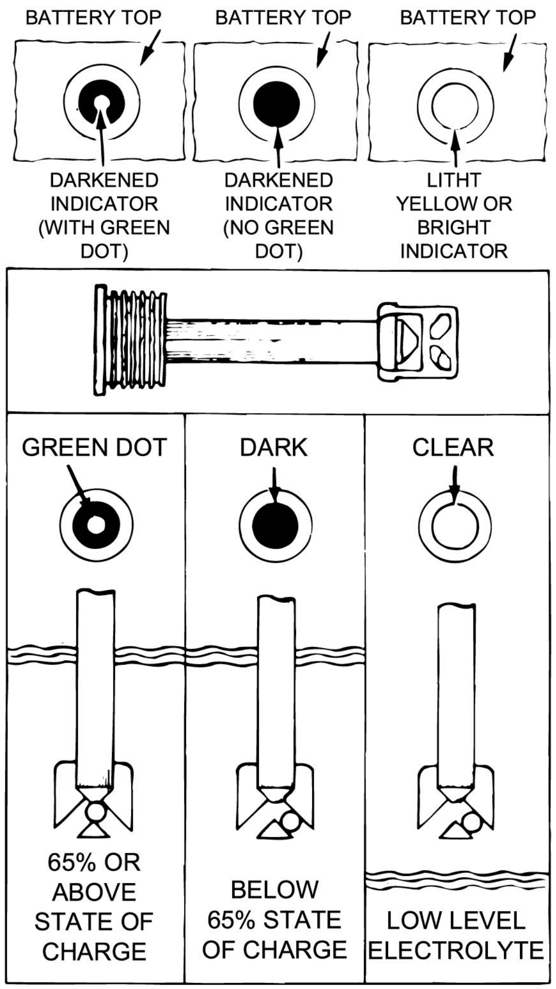


LNWD80MH000401

Built-in Hydrometer

The sealed battery has a special temperature compensated hydrometer built into the cover to show the battery’s state of charge.

The hydrometer has a green ball within a cage that is attached to a clear plastic rod. The green ball floats at a predetermined specific gravity of the electrolyte representing about a 65 percent state of charge. When the green ball floats, it rises within the cage and positions itself under the rod. A green dot then can be seen in the center of the hydrometer. The built-in hydrometer provides a guide for battery testing and charging. In testing, a visible green dot means the battery is charged enough for testing. If the green dot is not visible, it means the battery must be charged before the test procedure is performed.


BATTERY TOP
BATTERY TOP
BATTERY TOP
DARKENED INDICATOR (WITH GREEN DOT)
DARKENED INDICATOR (NO GREEN DOT)
LITHT YELLOW OR BRIGHT INDICATOR
GREEN DOT
DARK
CLEAR
65% OR ABOVE STATE OF CHARGE
BELOW 65% STATE OF CHARGE
LOW LEVEL ELECTROLYTE

LNW46DLH000101

In charging, the appearance of the green dot means that the battery is sufficiently charged. Charging can then be stopped to prevent overcharging.

The hydrometer on some batteries may be clear or light yellow. This means the fluid level is below the bottom of the rod and attached cage.

This may have been caused by excessive or prolonged charging, a broken case, excessive tipping or normal battery wear out. If a cranking complaint exists, and the hydrometer is clear or light yellow, replace the battery – do not charge, test or jump start the battery.

In order to properly observe the hydrometer, the top of the battery should be clean. A light may also be required when working in a poorly lit area.

Common Causes of Failure

If tests show that a battery is good, yet it does not perform well in service, one of the following conditions may be the problem:

1. Vehicle accessories left on for an extended period of time.
2. Problem in the charging system, such as a slipping fan belt, high wiring resistance, or a faulty generator or regulator.
3. A vehicle electrical load exceeding the generator capacity, with the addition of electrical devices such as radio equipment, air conditioning, window defoggers, or light systems.
4. Problems in the electrical system, such as shorted or pinched wires.
5. Extended slow-speed driving with many accessories turned on.
6. Loose or poor battery cable-to-post connections, previous improper charging or run-down battery, or loose hold-downs.
7. High-resistance connections or other problems in the cranking system.

Electrolyte Freezing

The freezing point of electrolyte depends on its specific gravity. Since freezing may ruin a battery, it should be protected against freezing by keeping it in a charged condition.

Carrier and Hold-Down

The battery carrier and hold-down should be clean and free from corrosion before installation.

The carrier should be in a sound mechanical condition so that it will support the battery securely and keep it level. Be certain there are no foreign objects in the carrier before installation.

To prevent the battery from shaking in its carrier, the hold-down bolts should be tight. However, the bolts should not be tightened to the point where the battery case or cover will be placed under a severe strain.

Controller Area Network (CAN) Circuit Description

The circuit consists of the engine control module (ECM), the transmission control module (TCM), the glow plug control module (GPCM), and the instrument panel (IP) cluster. These ECU always communicate each other through the CAN circuit.

The ECM and the TCM have another CAN circuit for communicate with a scan tool. The circuit consists of the ECM, the TCM and the data link connector (DLC).

Data Link Connector Circuit Description

The Data Link Connector (DLC) is the connector for communications and connections with external diagnostic devices (scan tools) and controllers. The Diagnostic Trouble Code (DTC) stored in the ECM, TCM, Mimamori, DEF and EHCU memory can be read either through a hand-held diagnostic scanner such as external diagnostic devices plugged into the DLC or by counting the number of flashes of the light when the diagnostic test terminal of the DLC is grounded.

Engine Control Module Description

The ECM is located on the chassis frame of the engine left side via mounting bracket. The ECM controls the following:

- The fuel supply control
- The fuel injection timing control
- The exhaust gas recirculation (EGR) control
- The on-board diagnostics for engine control
- The cruise control
- The exhaust brake control

The ECM constantly observes the information from various sensors. The ECM controls the systems that affect vehicle performance. The ECM performs the diagnostic function of the system. The ECM can recognize operational problems, alert the driver through the malfunction indicator lamp (MIL), and store diagnostic trouble codes (DTCs). DTCs identify the system faults to aid the technician in making repairs.

Refer to the Engine Control System.

Fuse, Fusible Link, and Slow-Blow Fuse Description

Fuse

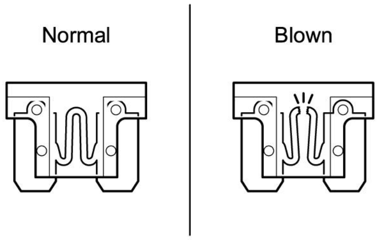
Fuses are the most common form of circuit protection used in vehicle wiring. A fuse is a thin piece of wire or strip of metal encases in a glass or plastic housing. It is wired in series with the circuit it protects. When there is an overload of current in a circuit, such as a short of a ground, the wire or metal strip is designed to burn out and interrupt the flow of current. This prevents a surge of high current from reaching and damaging other components in the circuit.

Determine the cause of the overloaded before replacing the fuse.

The replacement fuse must have the same amperage specifications as the original fuse.

Never replace a blown fuse with a fuse of a different amperage specification.

Doing so can result in an electrical fire or other serious circuit damage. A blown fuse is easily identified.



LNW780SH011301

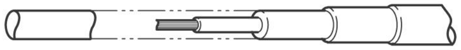
Fusible Link

The fusible link is primarily used to protect circuits where high amounts of current flow and where it would not be practical to use a fuse. For example, the starter circuit. When a current overload occurs, the fusible link melts open and interrupts the flow of current so as to prevent the rest of the wiring harness from burning.

Determine the cause of the overload before replacing the fusible link. The replacement fusible link must have the same amperage specification as the original fusible link.

Never replace a blown fusible link with fusible link of a different amperage specification. Doing so can result in an electrical fire or other serious circuit damage.

A blown fusible link is easily identified.



LNW48ASH004001

Slow-Blow Fuse

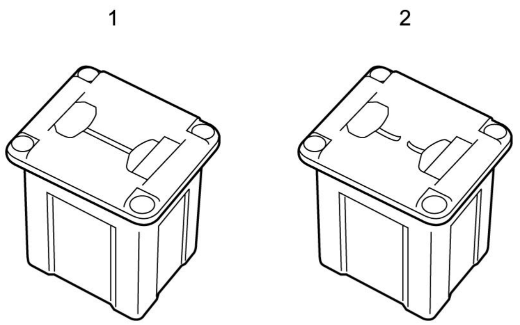
A slow-blow fuse is used in a circuit having a very high current flow (starter) or in an area where an ordinary fuse would be impractical.

Excessive current flow causes the fusible link inside the fuse to melt. Current flow is interrupted. Circuit damage caused by fire or heat is prevented.

Before replacing a fuse, determine the cause of the excessive current.

Always replace the burnt-out fuse with a new fuse of the same amperage rating. Replacing the fuse with one having a higher rating can result in a serious and expensive electrical fire.

Figure 1 shows a normal slow-blow fuse. Figure 2 shows a burnt-out fuse. it is easy to distinguish between the 2 fuses.



LNW780SH012101

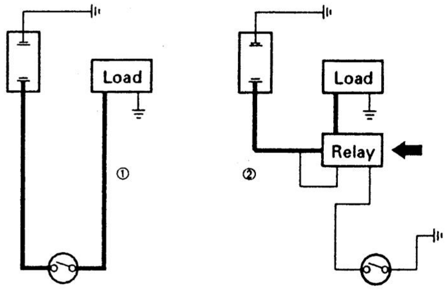
Slow Blow Fuse Specifications

Type	Rating	Case Color	Maximum Circuit Current (A)
Connector	30A	Pink	15
Connector	40A	Green	20
Connector	50A	Red	25
Connector	60A	Yellow	30

Relay Description

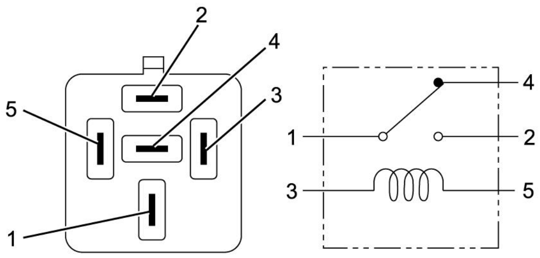
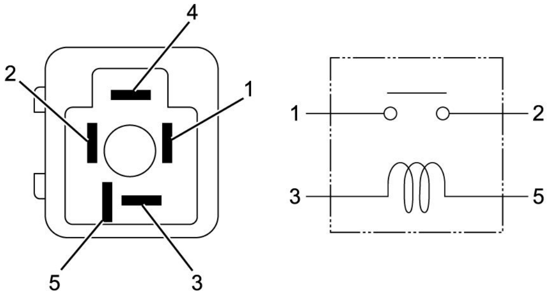
Battery and load location may require that a switch be placed some distance from either component. This means a longer wire and a higher voltage drop (1). The installation the battery and the load reduces the voltage drop (2).

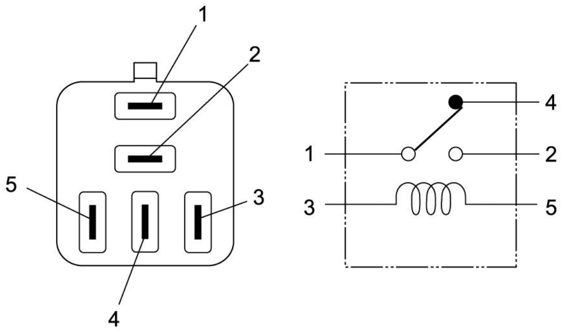
Because the switch controls the relay, amperage through the switch can be reduced.



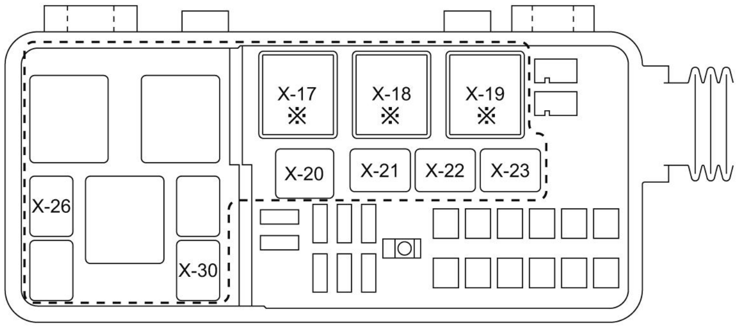
LNW38ASH002701

Relay Specification and Configuration

Name/Color	Rated Voltage/Coil Resistance	Internal Circuit
ACB 12201/Orange	12V/ Approx. 103Ω Minimum operating voltage: 7V at 20°C (68°F)	 LNW780SH011401
MR82C/ White Label	12V/ Approx. 23Ω Minimum operating voltage: 7V at 25°C (77°F)	 LNW780SH011501

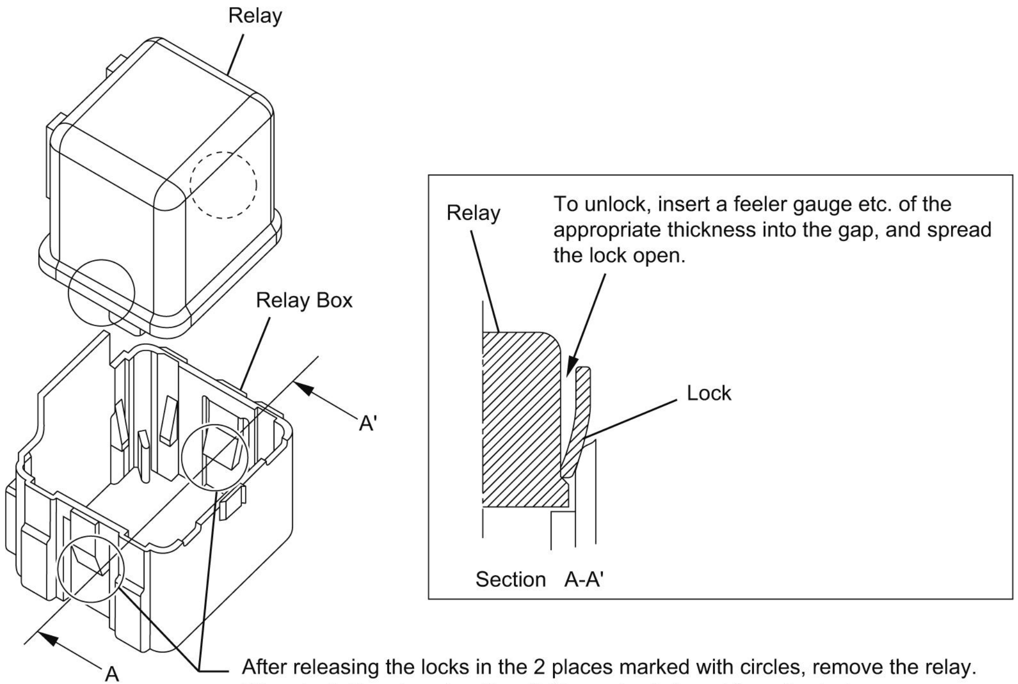
ACM12221 Black	12V/ Approx. 120Ω Minimum operating voltage: 7V at 25°C (77°F)	 1 2 5 3 4 4 1 2 3 5 RTW78ASH002701

Relay Exchange Method



X-17 ※
X-18 ※
X-19 ※
X-20
X-21
X-22
X-23
X-26
X-30

When detaching the ※ marked relays, carry out work in accordance with the below procedures.



Relay
Relay Box
A'
A
Relay
Lock
Section A-A'

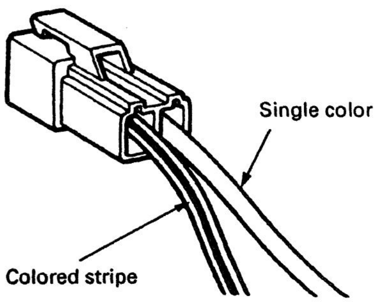
To unlock, insert a feeler gauge etc. of the appropriate thickness into the gap, and spread the lock open.

After releasing the locks in the 2 places marked with circles, remove the relay. When installing, insert until a clicking noise is heard from the lock.

LNWG80LF000401

Wiring Description

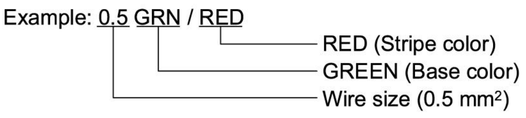
Wire Color


Single color
Colored stripe

LNW38ASH002201

All wires have color-coded insulation.

Wires belonging to a system’s main harness will have a single color. Wires belonging to a system’s sub-circuits will have a colored stripe. Striped wires use the following code to show wire size and colors.


Example: 0.5 GRN / RED
RED (Stripe color)
GREEN (Base color)
Wire size (0.5 mm²)

HCW480SH000101

Abbreviations are used to indicate wire color within a circuit diagram.

Refer to the following table.

Wire Color Coding

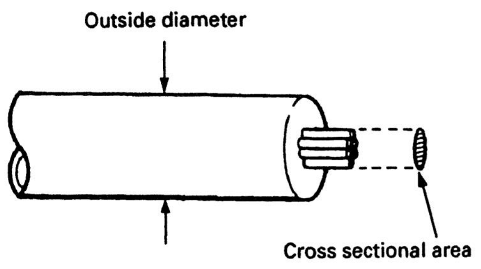
Color-Coding	Meaning	Color-Coding	Meaning
BLK	Black	BRN	Brown
WHT	White	LT GRN	Light Green
RED	Red	GRY	Gray
GRN	Green	PNK	Pink
YEL	Yellow	LT BLU	Light Blue
BLU	Blue	VIO	Violet
ORN	Orange	BEI	Beige

Distinction of Circuit by Wire Base Color

Base Color	Circuits	Base Color	Circuits
BLK	Starter circuit	YEL	Instrument Circuit
WHT	Charging circuit	BLU, ORN, BRN, LT GRN, GRY, PNK, LT BLU, VIO, BEI	Other Circuit
RED	Lighting circuit		
GRN	Signal circuits		

Wire Size

The size of wire used in a circuit is determined by the amount of current (amperage), the length of the circuit, and the voltage drop allowed. The following wire size and load capacity, shown below, are specified by AWG (American Wire Gauge) (Nominal size means approximate cross sectional area).



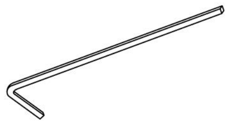
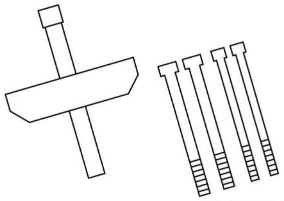
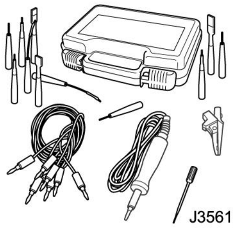
LNW38ASH002301

Wire Size Table

Nominal Size	Cross Sectional Area (mm2)	Outside Diameter (mm)	Allowable Current (A)	AWG Size (Cross Reference)
0.3	0.372	1.8	9	22
0.5	0.563	2.0	12	20
0.85	0.885	2.2	16	18
1.25	1.287	2.5	21	16
2	2.091	2.9	28	14
3	3.296	3.6	37.5	12
5	5.227	4.4	53	10
8	7.952	5.5	67	8
15	13.36	7.0	75	6
20	20.61	8.2	97	4

Special Tools and Equipment

Special Tools

Illustration	Tool Number/ Description
 GE48717	GE-48717 Nozzle Adjuster
 5852100160	J-29752 Steering Wheel Remover
 J35616-C	J-35616 Connector Test Adapter Kit (With Test Lamp)